PRINTING EQUIPMENT ENGINEER

FEBRUARY 1938

A TECHNICAL PUBLICATION FOR PRODUCTION AND MECHANICAL EXECUTIVES IN THE GRAPHIC ARTS INDUSTRY

2 NEW LINOTYPES

ready to speed production in your plant

1938 marks another milestone in Linotype's progress. The fifty-second year of intensive research and development brings the two Master Models, 31 and 32. Created as four-magazine versions of the famous Models 8 and 14, they embody new time-saving refinements to cut composition costs. Write your Linotype representative for detailed description or see them at nearest agency.

LINOTYPE BLUE STREAK MASTER MODELS

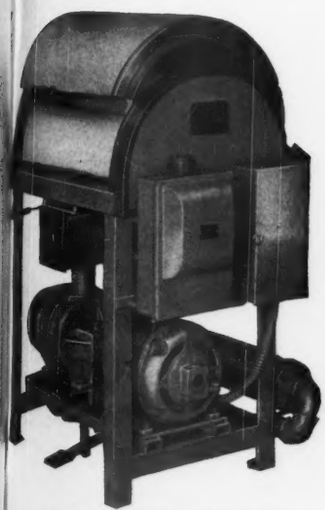
MASTER MODEL 32 is pictured (right) with four main magazines and four auxiliary magazines. There may be fewer magazines on either main or auxiliary side if this maximum capacity is not required. Its mate, the MASTER MODEL 31, has the same main magazine capacity but carries no auxiliaries. All magazines on both models are shifted by famous One-Turn Shift and its adjustable counter balance.

MERGENTHALER LINOTYPE COMPANY, Brooklyn, N. Y.

NEW YORK CITY · SAN FRANCISCO · CHICAGO · NEW ORLEANS · CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA · REPRESENTATIVES IN THE PRINCIPAL CITIES OF THE WORLD

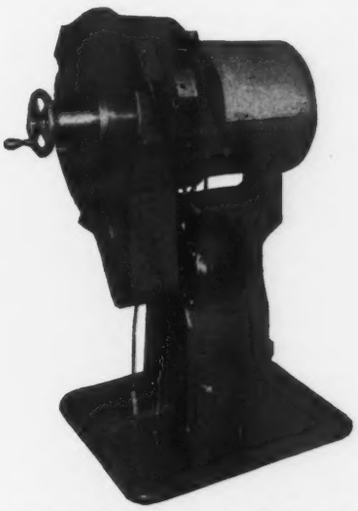
A-P-L and Linotype Memphis family

STAHI PROVIDES FUNDAMENTAL PRINCIPLES IN MAINTAINING ACCURATE PRINTING LEVELS, WITH STAHI MACHINERY, REFLECTING BETTER PRINTING.



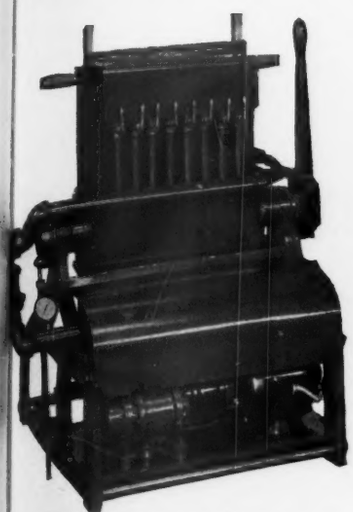
STAHI JUNIOR FORMER

The Stahi Junior Former for the Smaller City Daily Newspaper, Effecting Uniform Casting Levels on Dry-mats.



STAHI DOUBLE-PAGE PLATE MATCHING MACHINE

Stahi Double-Page Plate Matching Machine, for perfect matching of double plates over press clips.

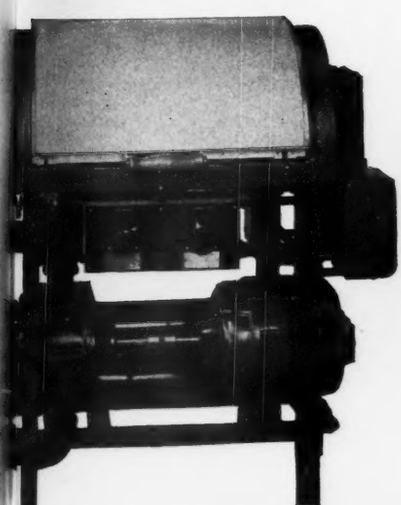


STAHI FLAT VACUUM CASTING BOX

Stahi Flat Vacuum Casting Box for effecting uniform casting levels on flat casts.

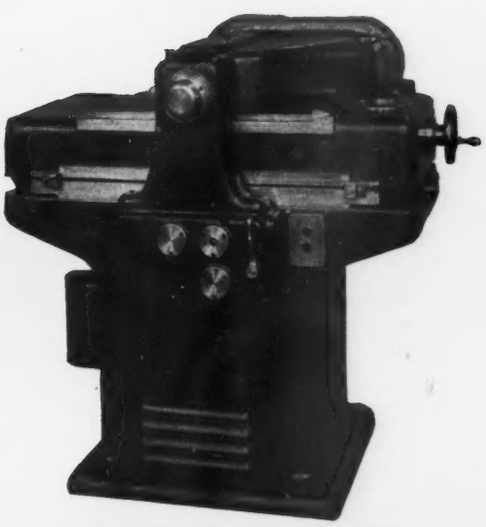
STAHI FINALTRIM

Stahi Finaltrim for trimming mats to final clip to clip length in the curved formation.



STAHI AUTOFORMER

Stahi Autoformer designed for the larger Metropolitan Newspaper, or where fast bulk production is required—Automatic Operation.



PREMIER ROTARY SHAVER

The Premier Rotary Shaver has demonstrated the soundness of the Rotary Principle of Flat Shaving. It's The New Way.

"Life"

(*Continued from Page 18*)

paper web was subject to shrinkage. The sheet actually shinks a full quarter-inch when it is so suddenly dried. But the cold-rolls seem to stretch the sheet again to its original width. However, you can imagine the complications when the web, which is printed 60 in. wide, immediately shrinks to 59¾ in., then expands to 60 in., just in time to shrink again to 59¾ in. The final cold roll puts it in shape again for the folder setting, but these rapid changes do not help things any, and they sometimes leave the sheet a bit slack. This accounts for the occasional wrinkle you may see across a page.

In the beginning, fires were common. The press would stop suddenly, the heat would be a bit slow in slacking off, and the result was "really something." That has been overcome by the substitution of the vitreous cups in the heaters for the open gas bar.

For a time, too, we were troubled with blistering. This had to do with the amount of moisture in the paper when it was received from the mill. The ink would be laid on the paper, it would go through the heater, get more ink on the other side and go back into the heat again. Thus if the sheet were too moist, vagrant beads of water would be sealed into the sheet—sealed in by ink on both sides. The moisture would be converted to steam, which, having no outlet, would explode, leaving a sort of pricked bubble effect, usually right in some advertiser's very best blonde copy, or at least in the middle of his trademark. That had to stop—and it was stopped—at the paper mill. All stock is now limited as to moisture content.

Binding "Life"

There is nothing new or novel about the binding of *Life*. The black-and-white signatures, already folded, arrive in the bindery, where they meet with the other signatures which go to make up the complete book. These are the cover, the three or four-color inserts, and the rotogravure signature.

The cover and the inserts have been printed on four-color roll-fed McKee Presses. The gravure signatures are printed on two one-color units feeding into a regular magazine-type folder. Christensen stitchers are used and are currently hand-fed.

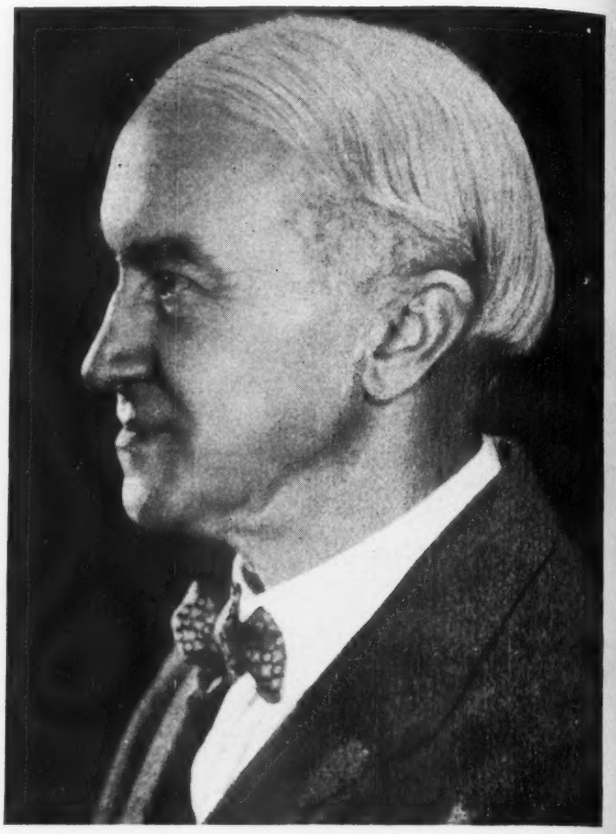
Delivering "Life"

After having been stitched, the magazines are jogged and squared up, and put onto a moving belt in piles of ten or a dozen, depending upon their thickness. The belt moves through an automatic Roe trimmer, which centers the copies very neatly and shears off the trim, first on the front or open edge, then on the two ends.

The books continue about ten feet on the belt, where they are either taken off and stacked up for the bundlers of newsstand copies (which are shipped by express) or are picked up by an operator, who runs them through the automatic mailer, which stencils the name and address of the subscriber upon the back cover.

The subscriber copies are then bundled, put into mail sacks, weighed and loaded on trucks which carry them directly to the mail trains on which they will move to the post-office of destination. All copies for each city are separated as they come from the machine. A small circle, imprinted after the last name in each city, enables the "picker-offer" to make the separation.

Golden Anniversary Testimonial Dinner



Geo. E. Pancoast has had colorful career with Hearst Organization—first to put color on newsprint. Developed the 'fudge' for fast news results.

FIFTY years ago this month a slim young man with dancing eyes and a Boston accent walked into the *Daily Examiner* office in San Francisco, Cal., and put in his bid for a job. Well, he got the job! He not only got that composing room job he was after, but one that turned out eventually to be one of the most important jobs in the history of the newspaper business.

That young fellow was George E. Pancoast. Now, with 50 years in the Hearst organization behind him—50 years packed with achievement—George Pancoast is going to be honored as few men in his profession have been honored before.

On Thursday evening, February 10, hundreds of printing executives, editors, publishers, men in public life and his own fellow workers in the Hearst organization gathered at Hotel New Yorker in New York to pay homage to this veteran who has given so much to modern publishing.

As *Printing* Equipment *Engineer* goes to press, we are informed that the Golden Anniversary Testimonial Dinner is being arranged by a committee of which William Randolph Hearst, jr., is General Chairman, and Harry Davis, an associate of Mr. Pancoast in the Hearst Newspaper Engineering Division, is Chairman of Arrangements.

"Aside from the social character of the dinner, Pancoast night at the Hotel New Yorker will actually be a convention of newspaper pioneers from all over the country," Mr. Davis explained.

"All the news and picture units in the Hearst organization will be represented in an exhibit which will demonstrate the great development that has taken place in the newspaper trade over the span of years that Mr. Pancoast has been with Mr. Hearst.

"An atmosphere reminiscent of the Gay Nineties will mark the entertainment features of the affair. In every aspect possible, the Committee will dip into the past to bring out the spirit of Auld Lang Syne."

Mr. Pancoast's own record needs no repeating here. To go into lengthy details in reciting his great contributions to journalism would be like bringing coals to Newcastle.

The first man to put color on newsprint, his mechanical genius has given the newspaper world 40 patented inventions, practically all of which are now in general use.

His greatest invention was, of course, the color press which revolutionized the entire industry. The modern newspaper would not be possible without the Pancoast Color Press and the other mechanical marvels which have been accepted as commonplace in this age.

His genius gave us the "fudge," making the speed of modern journalism part of the essential character of the Fourth Estate. Few of the millions throughout the country, who each afternoon during the spring, summer and early fall, pick up the baseball scores and racing returns a few minutes after the events are over, realize that George Pancoast gave them this "miracle," too.

As Secretary to Mr. Hearst in the late Eighties and early Nineties, Mr. Pancoast was one of the pioneers in the development in rapid camera work. His Chief soon learned, under his able tutoring, to become an ace photographer as well.

Among Mr. Pancoast's exploits with the camera was the first photograph ever taken of the interior of an Egyptian Pharaoh's Tomb, which he and Mr. Hearst managed to take during an adventurous trip in the Nile country.

As Mr. Hearst, himself, stated in a telegram to the Committee in charge of the Testimonial Dinner:

> "Fifty years is a long time for two men to be together. George Pancoast has done more for the organization than we will ever fully realize. I prize George as a friend and one who has been loyal to me through more than the span of most men's lifetimes."

Ludlow Karnak Black Italic

Here's a new Ludlow face for smashing, compact, dynamic display. It does pack a punch! Karnak Black Italic has enough angularity . . . delivers sparkling display within limited area . . . and blends typographically with almost any typeface for body matter (with particular affinity for other members of this flat-serif family).

As with all Ludlow italics driven in slanting matrices, there are no overhanging kerns to break off.

Available in matrix form in all sizes from 18 to 72 point, inclusive . . . a virile face styled to the heavy-duty calls of 1938.

And, as usual with Ludlow composition, efficient in setting . . . no type shortages . . . rapid and sure justification . . . convenient universal spaces . . . and no pi.

Ludlow Typograph Co.
2032 Clybourn Avenue + + Chicago, Illinois

● Shown below are some representative sizes of the vigorous Ludlow Karnak Black Italic, which is available in all sizes from 18 to 72 pt. Specimen sheets showing all sizes will be gladly sent to you upon request.

Pen
72 Point Ludlow 30-HI Karnak Black Italic

Black
48 Point Ludlow 30-HI Karnak Black Italic

Designs
36 Point Ludlow 30-HI Karnak Black Italic

Ad Heads
30 Point Ludlow 30-HI Karnak Black Italic

Advertising
24 Point Ludlow 30-HI Karnak Black Italic

Ready for Ideal Rollers, Now?

THINK of how conscientiously you have tried to make other rollers give you the clear, clean results you so earnestly desire.

THINK of how much time you've lost in trying out various types of press rollers to meet the problems presented by new inks, new papers and new methods of plate-making.

THINK of how many times you've had to adjust and readjust rollers for the purpose of maintaining uniform quality throughout a run.

Then think of the many pressrooms that are now entirely free from these annoyances simply because they have equipped their presses with Ideal Rollers designed for the specific conditions confronting them.

Ideals are not just letterpress rollers; they are made of *particular* compounds which have been developed especially to meet your requirements. Users will enthusiastically advise you of the superiority of these rollers.

You'll recognize this superiority in the first run that comes off your press. Blacks have a lively, velvety depth and an even application; halftones sparkle with punch; colors are clear and they stay clean and unsullied throughout the entire run. . . That's **QUALITY!**

Resettings are seldom necessary with Ideal Rollers. They are easy to clean, require little handling, and with ordinary pressroom care will outlast other rollers many times. There is an Ideal Roller for every purpose; all that is necessary is to confide in us what special conditions you have to meet.

***THINK** of the difference—and order Ideal Rollers now!*

IDEAL ROLLER & MANUFACTURING CO.

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balanced performance

MILLER SIMPLEX DELIVERS ALL THREE PROFIT FACTORS

1. High Production

1. 4500 unhurried impressions per hour; 19 1/16" x 24 1/4" form in chase.

2. Versatile—tissue or 20 pt. board (some stocks up to 36 pt.) handled equally well.

3. Maximum material savings; paper, ink, rollers, plates—uninterrupted operation.

2. Fine Quality

1. Distribution—"ink-mill" rotary type, full coverage heavy forms at all speeds.

2. Impression—Eccentric sleeve bearing, heavily ribbed bed, scientifically braced cylinder; each a one-piece casting.

3. Register—Positive-control feeder, 100% suction, with automatic slow-down.

3. Low-cost Operation

1. Durable—all-steel (not cast iron) gearing, rigidly reinforced frame, expensive alloys.

2. Compact—up to 50% saved in floor space. Lower rental. Overall visibility.

3. Simple operation—fully automatic, accessible, safe.

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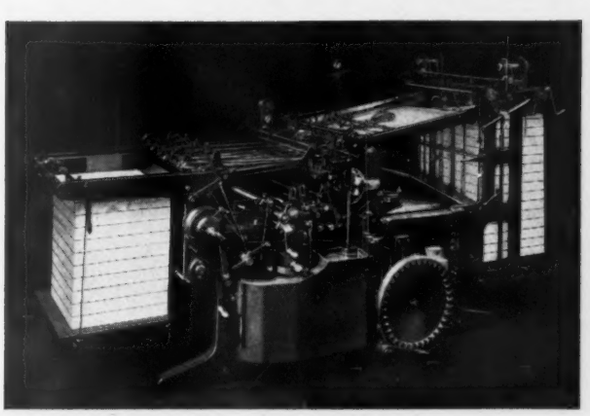
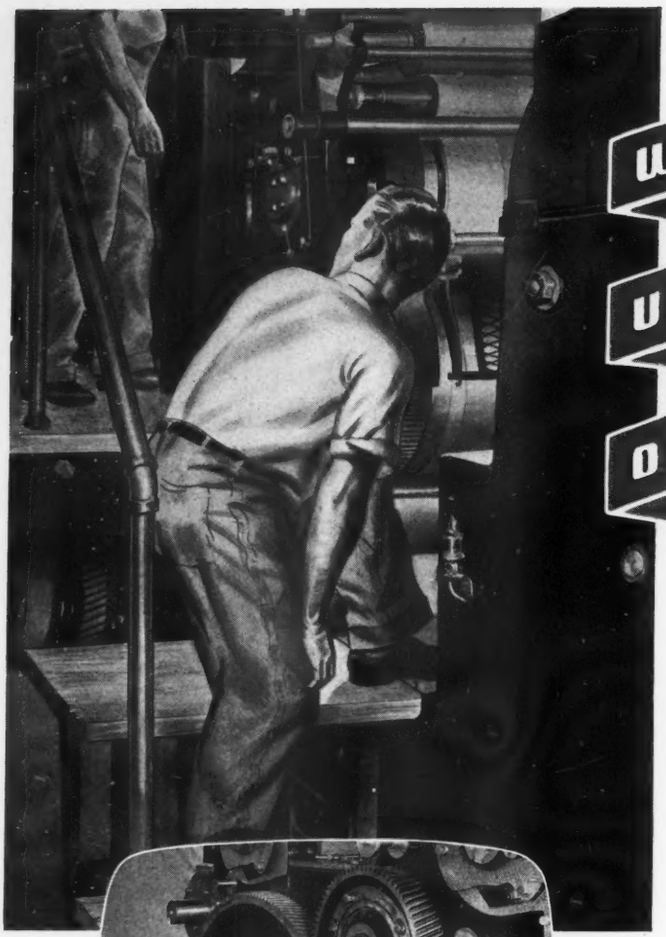
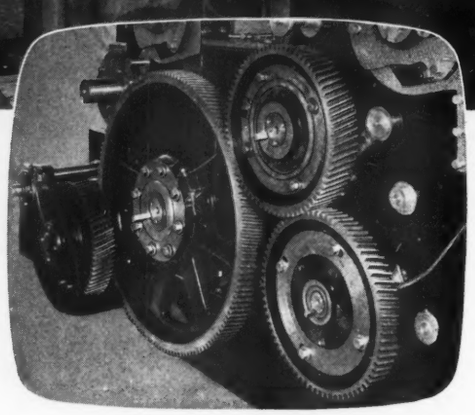
miller

Write for folder BALANCED PERFORMANCE. It describes and illustrates Simplex advantages in detail, by "factual photo."





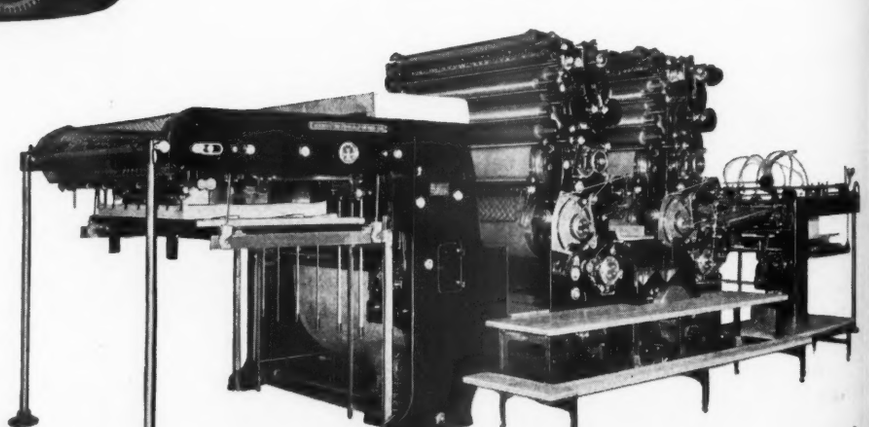


WHY SPIRAL GEARS ARE USED IN THE MAIN DRIVE OF HARRIS PRESSES . .

• When it is realized that the complete operating load of the press is transmitted through the main gear drive mechanism, the advantage of Harris spiral gear construction is understood as of the utmost importance. Spiral gears have more actual pitch line contact for the same width of face than spur gears. Theoretically, too, spiral gears have continuous contact due to the spiral construction which tends toward smoother and quieter operation. Quietness of operation is a Harris press feature.

SOME FEATURES OF HARRIS COLOR GROUP

Revolutionary Harris H. T. B. Stream Feeder • Precision Tapered Pre-loaded Roller Bearings • Choice of Feed Roll or Rotary 3 Point Registering Mechanism • Micrometer Dials for Setting Printing Pressures • Quick Change Plate Clamps • Double Size Transfer Cylinder • Inker Load Eliminated From Printing Couplet • Harris Cleanable Ink Fountain • Adjustable Ink Vibration • Multi-Unit Construction • Spiral Gear Drive • Spring Grippers Throughout • Efficient Pile Raising and Pile Lowering Mechanism • Vacuum Control of Sheet in Delivery • Dial Press Speed Indicator • Feeder and Delivery Accommodate Any Style or Size Platform • One Piece Base with Extra Heavy Framing and Construction • Micrometer Adjustment of Ink Supply • Ball Bearing Mounting of All Ink Rollers • Improved Delivery Gripper Bar and Mounting.



·LSK· 42" x 58" · TWO COLOR·

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Printing Equipment Engineer

Trade-Mark Registered U. S. Pat. Office

February, 1938

Volume 55 No. 5

Contents:

	Page
Pancoast Testimonial Dinner	4
Progress in Newspaper Production—I *Henry A. Wise Wood*	15
Facts About "Life" *N. L. Wallace*	16
0.0000367 in. Loss per Matrix	20
Complexity of Ink Making Revealed in Visit to Braden Sutphin New Plant	28
Develops Automatic Ejector-Mold Change *H. R. Freund*	34
New Literature	39
Six Generations Removed from Original Cut	47
Advertisers' Index	50

A Technical Publication for the Mechanical Executive Responsible for Printing Production, Equipment and Supplies in the Commercial, Magazine, Private Plant and Daily Newspaper Field.

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Associate Editor: Adam Henri Reiser

A Monthly Publication

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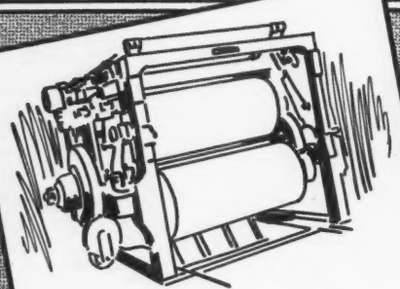
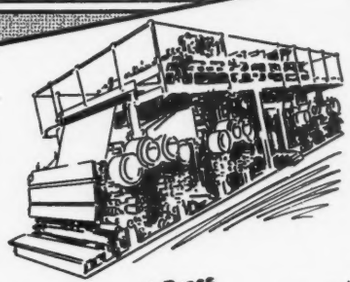
FOR BETTER AND MORE ECONOMICAL PRINTING OF NEWSPAPERS



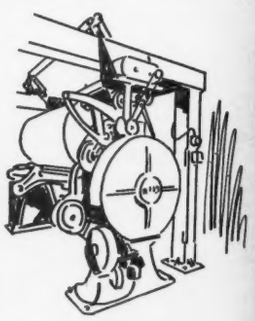
Full-Automatic Autopaster with Autoreel

Splices paper-rolls automatically at full press speed. Steps up press production, reduces waste, and improves printing quality. Average accuracy in records which include more than 100,000 splices, well over 98 per cent.



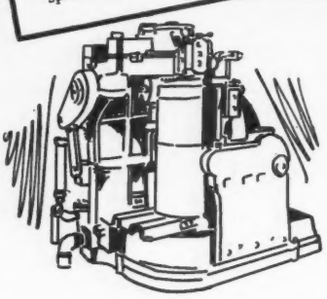
Wood Steel Press

Press and Folder can be operated at running speeds up to 60,000 products an hour.



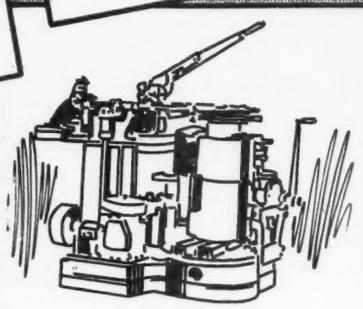
Junior Autopaster with Standard Reel

This machine, like the Full-Automatic Autopaster, makes its splices at the full running speed of the press. Its cost, however, is considerably less.



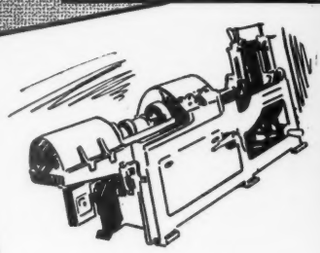
Automatic Autoplate

The modern method of making newspaper printing plates in quantities. Insures a fixed and dependable production of four plates a minute.



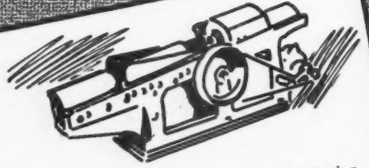
Junior Autoplate

Standard equipment for casting stereotype plates in many big newspaper plants throughout the world.



Heavy-Duty Pony Autoplate

This is the latest development of the Pony Autoplate for casting, finishing and cooling printing plates, for large and medium-size newspapers.



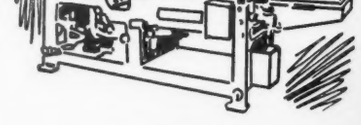
Autoshaver

Used in connection with Automatic and Junior Autoplate machines for accurately finishing, cooling and drying stereotype printing plates.

Without Vacuum — With Vacuum

Vacuum Back

A recent Wood development, adaptable to all Wood Autoplate casting machines, which promotes definitely better stereotyping, eliminates light spots due to buckles in mats, and prevents mat creeping.



Standard Pony Autoplate

This is the standard Pony machine for casting, finishing and cooling plates, used in hundreds of newspaper stereotyping plants throughout the world.

WOOD NEWSPAPER MACHINERY CORPORATION

PLAINFIELD, NEW JERSEY • NEW YORK OFFICE: 501 FIFTH AVENUE

DAYCO ROLLERS

CAN BE SOFT AND STAND THE GAFF

★ Better inking and greater durability . . . that's what newspaper pressmen want in rollers. And that's what Dayco Rollers give them.

Dayco Rollers have the right plasticity, texture, and affinity for properly distributing ink. The work comes out sharp and clean. Roller jumping is avoided due to the Dayco's resilience.

And, along with their pliability and liveliness, Dayco Rollers are *tough.* They have the ruggedness and stamina to take the punishment of newspaper press work and give unprecedented roller mileage.

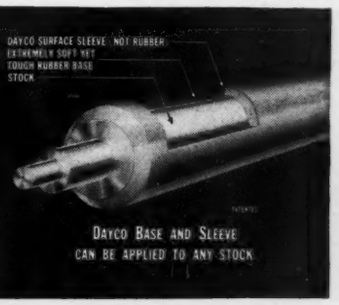
Dayco Rollers are impervious to ink, oil, and water. They are not affected by temperature and humidity. They do not soften and swell in hot weather—do not stiffen and shrink in cold weather.

Ask us to have a representative meet your requirements with Dayco Rollers specifically built for you. Remember, there is only one patented, renewable surface roller—DAYCO! Insist upon the genuine.

For complete information about the Dayco "Stayput" Newspaper Rollers, address Newspaper Division, The Dayton Rubber Manufacturing Company, Dayton, Ohio.

Dayco Rollers

D



DAYCO BASE AND SLEEVE
CAN BE APPLIED TO ANY STOCK

BRANCHES AND DISTRIBUTORS: *The Dayton Rubber Mfg. Co.* • *206 Park Murray Bldg., 11 Park Place, New York* • *Room 640, 20 N. Wacker Drive, Chicago* • *2970 W. Grand Blvd., Detroit* • *W. D. Tuck, 121 Broad Street, City Center Bldg., Philadelphia* • *Chas. M. Lewis, 985 Boulevard, N. E., Atlanta* • *R. G. Hopff, 5114 Stewart St., Cincinnati* • *John Leslie Paper Co., Minneapolis and Great Falls* • *Nassau Paper Co., St. Paul* • *California Printers Supply Co., 411 E. Pico St., Los Angeles* • *L. W. Dunlap, 7711 Miramonte Blvd., Los Angeles* • *Wm. Goodwin, 420 S. San Pedro St., Los Angeles* • *Pacific Printing Ink Co., Maritime Bldg., Seattle, and 716 Jackson Street, San Francisco* • *Edward Hauenchild, Honolulu. T. H.*

Where Customer Satisfaction is Concerned

the KLUGE is a great asset

The printer who cannot give his customer the kind of job he has a right to expect is out of luck, because the average buyer of printing has learned to know what is and what is not an acceptable job, and he is especially critical when expensive drawings and cuts are involved.

The KLUGE is a safe bet for customer satisfaction and repeat business. It offers accurate and easy adjustments for any kind of job, from solids to halftones, besides a good margin of profit when the job is delivered

The Kluge Selec-Tone system of ink distribution will give you the right amount of ink in the right place, and the Kluge roller and disc adjustments will see that it is of the proper consistency when it is deposited on the form; then the Kluge perfect impression will complete the job as it should be done, while Kluge speed and low production cost will take care of your profit.

This is putting it briefly, but if you will call or write our nearest branch, a representative will gladly drop in and give you further details on Kluge efficiency, or any Kluge owner will be glad to tell you what this press is doing for him.

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Manufacturers

Saint Paul, Minnesota

TURNING 2 TONS 500 Times a Minute—

. . . Calls for DYNAMIC BALANCE!

Rolling at a top speed of 500 r. p. m., the 4500-lb. impression cylinders of the Goss High Speed Anti-Friction Press gather tremendous power which is smoothed and quieted by dynamic balance.

Tests made and checked on the latest type balancing machines insure accurate compensation of weight down to a minimum of four ounces. Pounding, surging, noise, and vibration are reduced to an absolute minimum. Quality printing at more than 50,000 papers per hour can be constantly maintained.

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How to minimize typographical errors in your 'railroaded' news composition

The secret, of course, is to use Black & White MATRIX CONTRAST SERVICE. By making lines of Intertype and Linotype matrices readable at a glance—before the lines are cast—MATRIX CONTRAST SERVICE reduces all errors to a minimum . . . saves time . . . and promotes speed as well as accuracy in the handling of late news and ad composition. Black & White MATRIX CONTRAST SERVICE is guaranteed to reduce total errors at least twenty-five per cent—and the usual average is close to THIRTY-FIVE per cent. Write for folder.

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Read what users say . . .

"It has increased production, reduced errors, and enabled us railroad news with more freedo during emergencies."

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Progress

In newspaper production predicted—Precision plates printing on hard packing and full colored newspapers run at full speed

TOLD TO MAC SINCLAIR *By* HENRY A. WISE WOOD*

ON THE THRESHOLD

Henry A. Wise Wood, Chairman of the Board, Wood Newspaper Machinery Corporation, predicts several developments which will affect the newspaper printing industry importantly in the near future. These are as follows:

A lighter weight sheet.
Greater newsprint opacity.
Higher newsprint prices are coming as the rayon industry grows.
Greater saving in newsprint to the publisher is coming.
Clean first side (first impression) printing.
Narrow newspaper page margins.
Press speeds eventually will reach between 80,000 and 100,000 per hour.
Hard packing for newspaper printing is coming.
Full colored newspaper printed at full speed.

I

IN VIEW of the recent development of factors affecting both the publication and technology of newspapers, the newspaper publishing industry is in a transitional stage," said the writer to Henry A. Wise Wood, Chairman of the Board, the Wood Newspaper Machinery Corporation. "I would like to set down for our readers your thoughts with respect to the future progress of newspaper production. The newspaper's mission is always the same but its reading content and its production must be tuned with the ever-changing customs, habits and tastes of our people."

"I'm not an oracle—I don't know all of the answers, but I do have a lot of fun looking as far ahead as I can see. Newspaper production may be considered great sport creating equipment for the production of newspapers is fascinating work to me. I have spent the greater part of my life in evolving production tools for printing better newspapers. So go ahead, I'll do the best I can to answer intelligently," said Mr. Wood.

"There has been considerable agitation among publishers and their production executives regarding further dry mat shrinkage. There must be a point beyond which it would not be practical to go because of the liability of distortion as mats are made at the present time. I have in mind asking you for a short resume of the origin of shrinkage in dry mats," said the writer. Mr. Wood replied: "I was the first one to import the dry mat to this country. Having made arrangements with a German mill I obtained the agency for the United States. At first, the dry mat was a failure because it shrank in all sorts of ways—sidewise and lengthwise of the page. I didn't know the cause for this until after I made a study of the mats. In analyzing the problem, I discovered that the mats cut at the German mill from the mat web shrunk in but one direction. Some were cut crosswise of the making of the web and some lengthwise. No attempt was made by the Germans, the English nor by anybody here to benefit from the shrinkage of the mat. After attempts at use by American newspapers the dry mat was condemned because of the undependable shrinkage. The German mat caused some pages to be longer and narrower and other pages of variable widths when cast into plates. It seemed that no two pages cast of identical length. I discovered that the dry mat shrank in one way with respect to the direction of its making and that we could rely on that shrinkage if we knew which way the mats had been made. It occurred to me I could get ¼ in. shrinkage across the width. At that time the idea struck me that this shrinkage, properly controlled and used meant a saving in newsprint to the publisher.

"We couldn't depend upon the mill in Germany to send us mats cut in the same way in the making of the web. Then, too, the World War was coming on which

(*Continued on Page 49*)

*Chairman of the Board, Wood Newspaper Machinery Corporation, New York, N. Y.

Henry A. Wise Wood's career in the newspaper printing equipment field has been eventful. In over 50 years' association with the great newspaper section of the printing industry Mr. Wood has taken out many patents. Over 300 of his patented inventions pertain directly to press problems. In 1936 he received 31 United States patents. Since 1930 he has taken out 203 United States patents. Thoroughly modern, he travels by air. His capacity for the work he loves is astonishing.

Facts About LIFE

Gripping story of pioneering work necessary in paper, ink and printing industries to make possible rapid magazine production under unusual conditions.

By N. L. WALLACE*

JUST fourteen months ago I sat in on the delivery of one of the most extraordinary infants in publishing history! An infant that was out of his cradle and yelling for long pants even before he was four months old. That infant was *Life*. In planning for *Life* we had to determine what kind of a magazine it was going to be as to its physical appearance—what page size, what kind of paper, what type face and who would print it.

First off, the conception of a magazine printed on coated paper, using plenty of color, and printed on a four-day up-to-the-minute news schedule, posed a problem which looked as if it might long remain unsolved. There were tremendous mechanical difficulties in the way.

Revolution in Three Industries

Up to the Fall of 1936 very little coated paper was sold in rolls. It was prophesied that the paper would stick together if tightly rolled, and all sorts of difficulties were imagined. But a couple of mills were anxious to try, and they were encouraged to produce roll-coated. Not only did they succeed in producing a first class coated paper in rolls, but they simultaneously developed a process of coating the paper on the paper machine, while the sheet was being made.

Paper Problems Conquered

Today, the digested pulp—the "furnish" of the paper—is fed into the beaters at one end of a paper machine, to emerge at the other end in 60 in. rolls—dry and shiny with coating, ready to ship. And the paper is made at the rate of more than 600 feet per minute. Four hundred feet per minute is a mighty good speed even today on modern equipment, but *Life* paper is made faster and is coated on the machine.

The Ink Problem

Next came the ink—and perhaps that is the most important item of them all. For without the new type of heat-set inks, such as I.P.I.'s Vaporin and Levy's Flashdri, there could have been no high-speed printing, no matter how much coated paper was available. The heat-set ink was no invention of *Life's*. It had been in use for nearly a year.

No one, so far as I know, had endeavored to use the new ink as a means of printing on coated paper at high speed, and of folding that paper on the presses with no appreciable drying interval. Today, presses are being built as rapidly as the builders can turn them out—all equipped with the necessary apparatus to permit that very thing. *Life* pioneered in the use of these inks, but the credit for their existence belongs to the ink manufacturers.

The improvements in ink and paper manufacture alone could not have produced *Life*. There had to be a printer who could and would employ them to *Life's* purpose. The new ink and the new paper were almost unknown and untried when *Life* approached several of the largest printers in the United States, seeking a solution to the problem of manufacturing *Life*.

It took a courageous printer, at that, to lay down a hard and fast production schedule (backed up by prices) at that stage of the game. But little by little, with heads in the air like setters stalking a covey of quail, the printers sniffed their way up to the problem—and to make a long story a little bit less so, we finally selected our printer, R. R. Donnelley & Sons in Chicago.

Other Problems

With the printer chosen, we embarked on a furious program of preparation. Installation of heating equipment was rushed to completion on the presses selected for temporary use, and which would have to suffice until the new equipment on order could be delivered and installed. *Life* was a nightmare of paper tests, ink tests, dummy issues and short tempers.

Means of conveying editorial material and intent from New York to Chicago had to be developed, a smooth-working routine set up, and people established in new jobs.

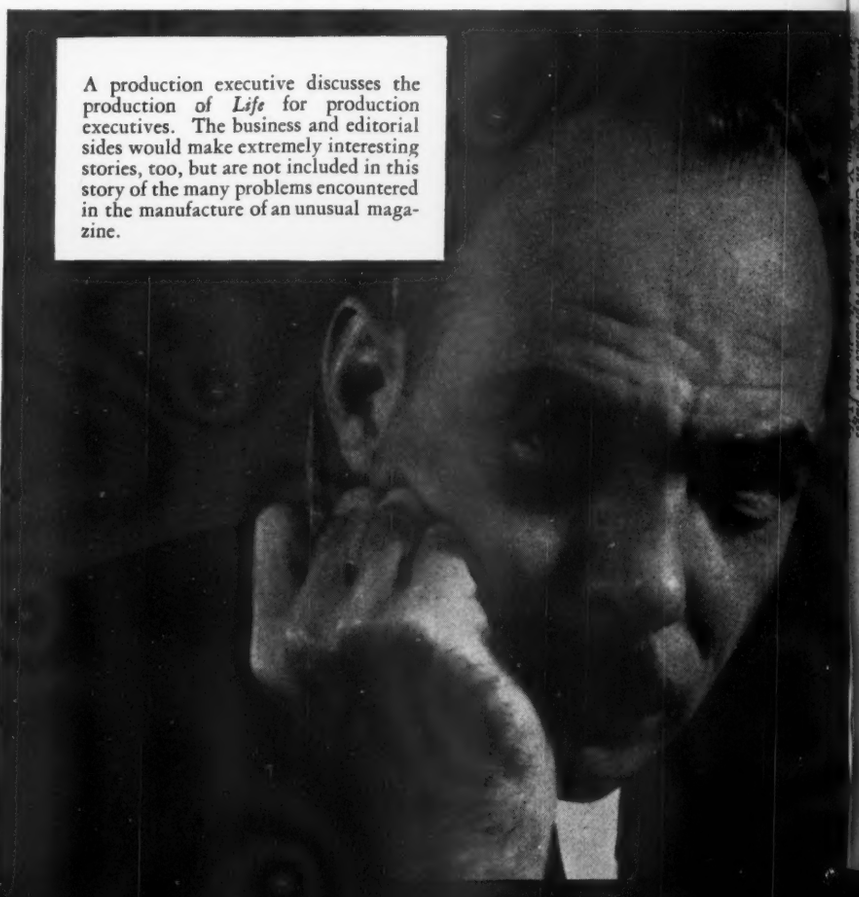
We worked out a method by which the editors could phone or telegraph a page layout to Chicago by the use of coordinated layout sheets, the ruled lines being numbered across the top and lettered down the side. It was to be used much the same way as the marginal numbers and letters are used to locate a city on a map.

With this organizing and scheduling behind us, we finally went to work on the first issue during the week of November 10, 1936. The first issue was dated November 23, 1936. The print order was 400,000, and it was due to go through the works on regular schedule.

The Layout Problem

Well, the editors started looking over their pictures. Now an editorial layout is very different from a finished mechanical layout. The editor, working with photostats, snips and cuts his pictures to fit the page, but he does it roughly. And because of the fast schedule on which Chicago must get to press, there is no time for trimming and fitting after the layouts get there. Every single minute counts. There is no time to send proofs back to the editors. Every page must move and keep moving, and once the editor has dispatched his layout to Chicago, it is too late for regrets. Consequently, we have in New York a mechanical layout department, which smooths out the rough editorial layout, and fits each picture into its exact spot on the page. They, too, use photostats which are carefully sized and trimmed, everything in the pica measure. When the photographs are cropped, the original photographs are scaled and the crop-marks carefully transferred to them.

The photostats are then pasted up on special



A production executive discusses the production of *Life* for production executives. The business and editorial sides would make extremely interesting stories, too, but are not included in this story of the many problems encountered in the manufacture of an unusual magazine.

*Production Manager, *Time* and *Life*, Chicago Offices. Abstracted from address before the January meeting of the Cleveland Club of Printing House Craftsmen.

SPECIMENS OF "LIFE" LAYOUT
Miniatures reproduced from the four-page layout sheet on which Art Director Charles Lanceley of LIFE made his first suggestions for the magazine. It is ruled in pica squares in faint gray ink. This sheet shows the page margins with allowance for bleed.

Printing EQUIPMENT Engineer, *February, 1938*

layout sheets, which are ruled off both ways in picas, like a sheet of graph paper. This sheet shows the various page margins, with allowances for bleed pages, gutter dimensions and so forth. This permits fast and accurate pasting-up which, when given to an engraver or a compositor, enables him to work rapidly and smoothly without the necessity for constant scaling and translating into printers' measure. It saves a lot of time.

The headlines and captions are translated into an exact type size to correspond with the size indicated by the editor. Strips of paper, printed with meaningless words and sentences, but in the standard type faces and sizes which we use, are chopped up and pasted in the type layout to give an indication of how the finished product will look. Such strips are carefully aligned with the pica rules.

All of this results in a mechanically perfect master layout, with pictures and type matter precisely placed. This master layout is then photostated—and Chicago gets the master and an extra copy.

The extra copy is another time-saver, for when both layouts reach Chicago, the picture layout goes to the engravers along with the original picture-copy. At the same time, a type layout goes to the composing room, accompanied by the typewritten copy. Thus both engraver and compositor get to work at once.

Type matter, except on late forms, generally goes to Chicago with the pictures and layout, but not necessarily. Frequently pictures are dispatched at 5:30 p.m. from New York on the Twentieth Century, and the copy is phoned, wired or teletyped any time before the Century arrives in Chicago the next morning. That may give an editor some badly needed hours in which to verify a news fact or to catch later news developments affecting his story.

When the material reaches the plant from New York we check the layouts into the hands of the engravers and the composing room, each getting its special and separate layout.

Fast Engraving and Typesetting

Now the careful mechanical layouts and the use of the pica rules come into play, and in a couple of hours we are looking at proof of type matter, and by 2 p.m. are okaying the engravings. We see and okay a fine-proof of each engraving, which is unusual in high-speed magazine production. The engravings are proved with the maximum of ink which can later be carried on the press, and when necessary the cuts are re-etched or even re-made. We do not resort to burnishing or other short-cuts, but try for clean, deeply etched halftones and a high degree of uniformity. We carry the maximum of ink on the presses because we lean toward the so-called "smash" type of picture.

That means a reproduction with plenty of contrast, but with no loss of middle-tones. We frequently sacrifice unimportant detail to stress the important features of the picture. Unfortunately, this sometimes results in solid black shadows, which most production executives might be tempted to call bad printing. Our own engravers and our printers sometimes call it that—but no one can deny the editorial effectiveness of contrast—sometimes at the expense of detail.

Proofs of type and halftones are rapidly okayed, and almost immediately the engravings and the type matter come together for lockup in the composing room. Then come page proofs, and the Production Office gets its final chance at the complete page. If instructions and layout have been properly followed, they can be almost immediately okayed—and the lock-up is sent to the foundry.

Closing "Life"

Twenty-four pages is the maximum number which we currently close in one day. In the scant period of 8½ hours, from receipt of copy at 9 a.m. to 5:30 p.m. we do all of the composition and make all of the engravings needed for any twenty-four pages of *Life*.

For a typical 104-page issue of *Life*, we would close 16 pages of letterpress and 8 pages of gravure on Friday, 24 pages of letterpress on Saturday, and 16 pages on Sunday. These are all editorial pages, as the black and white advertising pages must have been cleaned up and ready for the press before this schedule can start. The color, of course, printing more slowly, requires about three weeks to run, and so starts in advance of the black and white.

In the foundry wax-mold nickeltypes are made. Plates emerge from the foundry, the finishing is completed, and they are on their way to the pressroom by midnight. They do not all move at once, of course, but continue in a steady stream.

Makeready in 8 or 9 Hours

Makeready starts with the arrival at the press of the first plates. There are four 64-page presses to get rolling. Everything is done to speed up the task. Doubled and tripled crews literally swarm over the presses. They cut the makeready time to 8 or 9 hours exclusive of pre-makeready, and when the first day shift comes in on Monday morning, the presses are turning over and producing copies.

The Presses

Life letterpress equipment, exclusive of color presses, consists of four 64-page, web-fed rotary perfecting Hoe presses, each equipped with two magazine folders of the right-angle type. Four presses are now in operation, all newly installed within the past year. A fifth is nearing completion, and will soon be installed, and a sixth press will be ordered shortly. The four presses now operating print one color only.

The presses are double-decked and the decks may be operated independently or in combination through synchronized drives. The increasing demand for *Life* has never permitted operation of presses at less than 100% capacity. The folders will deliver 16, 8, 12 and 4-page signatures.

Ink Drying Devices

All black-and-white presses are equipped with heating apparatus for the instantaneous drying of the new heat-set inks. *Life* uses I.P.I. "Vaporin" heat-set ink. The combination of heating equipment and heat-set inks permits the use of coated paper, and allows it to fold on the press without delay for drying.

Life presses are designed to run at 10,000 revolutions per hour, at open speed. This is *not* the productive speed, but production is fast. Delays occasioned by changing rolls, web-breaks, wash-up, and so forth, are exaggerated by the heating equipment, which results in longer leads and a greater amount of printers' waste than occurs in the ordinary rotary printing operation.

The heaters for the heat-set ink are of the type manufactured by the Selas Company. They burn gas (and lots of it) which heats a series of vitreous cups, so that no flame comes in contact with the paper. A huge exhaust system sucks up the spent heat and its vapors, and forces it through a high stack where it is dissipated out of doors.

The flow of gas to the heater unit is automatically regulated so that the amount of heat increases or decreases with the speed of the press. There are two heater units on each press spaced about 12 ft. apart—one for each side of the web. The heating units are enclosed in metal boxes as wide as the web, and about 4 ft. long. The paper enters the box through a slit on one side and emerges through a slit in the other side. The temperature attained is approximately 1400 deg. F. when the press is running up to speed.

When the paper passes over the heating unit, the volatile vehicle of the ink oxidizes so rapidly that it actually bursts into flame. Peeking into the heat chamber, the paper is seen to be covered with a thousand dancing blue flames. It somewhat resembles a brandied plum pudding after it has been ignited.

When it emerges from the heat chamber, the web passes over the cold-roll, which is a water-cooled cylinder. The contact with the cold "sets" the ink and completes the drying. The paper then passes through the folders in exactly the same way as on any magazine press.

Complications in Use of Heat-Set Inks

Many are the complications surrounding the use of these heat-set inks. The heat required is, of course, a complication in itself, but there is also the problem of exhausting the gases and fumes which result from the oxidation of the ink. If not exhausted rapidly, they condense, fall back on the web and leave it spotted like a leopard. The exhaust draws out a lot of the heat, which means using more gas to maintain the heat level. That is now being overcome by cleaning and feeding back the heated air which is sucked out by the exhaust.

Another interesting but very annoying discovery having to do with heat was that the

(*Continued on page 4*)

INVESTMENT IN "LIFE"

Naturally, we hoped that Life *would click with the public. But our wildest dream did not encompass the tremendous wave of enthusiasm with which* Life *was greeted. We spent a lot of money trying to meet the demand in* 1937. *To be specific, we lost about three million dollars. In the previous year* 1936, *it was for us* $750,000. *Besides that, we have another* $750,000 *of cold cash tied up in the necessary inventories of raw materials, work in process and editorial content necessary to carry on the business—a total of* $5,000,000. *Our printers will soon have invested about* $2,000,000, *and our two principal suppliers of paper will have invested over* $3,000,000 *cash in new facilities. Over* $10,000,000 *of clean crisp bills have been spent to date, to say nothing of the ordinary turnover. If these figures seem large, consider what is in process of creation. To those whose primary interest is in production values,* Life *must mean a new high in technique at a new low in cost of production.*

I am a production man, and while I know full well that what the editors do with the tools of production is more important than the tools with which their ideas are delivered to the United States public, I cannot close without saying that I have experienced the thrill of my personal lifetime to see created from the minds of imaginative, creative men, the tools with which Life *is soon to be delivered to the United States public. These machines now being completed in New York, Pennsylvania, Illinois, Wisconsin, Tennessee and even in remote Georgia, represent a new technology. Many labor-saving devices are involved, apparently eliminating jobs. Yet* Life *is the provider of livelihoods for not less than 6000 persons. So—Technocracy and Technocrats be damned!*

Two Colors at High Speed

AND COTTRELL QUALITY

MADE IN TWO SIZES

	MAXIMUM SHEET	MINIMUM SHEET
Small Press . .	27x28	11x17
Large Press . .	28x42	19x26

Here is a new 1938 press—a Cottrell *rotary* press—which will open up a new source of profit for many printers.

It is a press for runs of moderate length as well as long runs. With the perfected curved plates which are now easily obtainable, make-ready on this unit is practically eliminated; and first-grade process work can be run at the rate of 5000 two-color sheets per hour.

Thus the average commercial printer can now obtain, on jobs of ordinary size, the great economies which are enjoyed by large edition printers.

Mechanical features include: Automatic stream feeder. Automatic plate cylinder trip.

Claybourn spirally grooved cylinders. Claybourn rapid register-hook system.

Convenient ink roll-back. Quick fountain adjustments. All adjustments accessible from floor. All rollers interchangeable.

Remarkable ink distribution and simplicity of operation.

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CLAYBOURN DIVISION

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CHICAGO: 332 SOUTH MICHIGAN AVENUE

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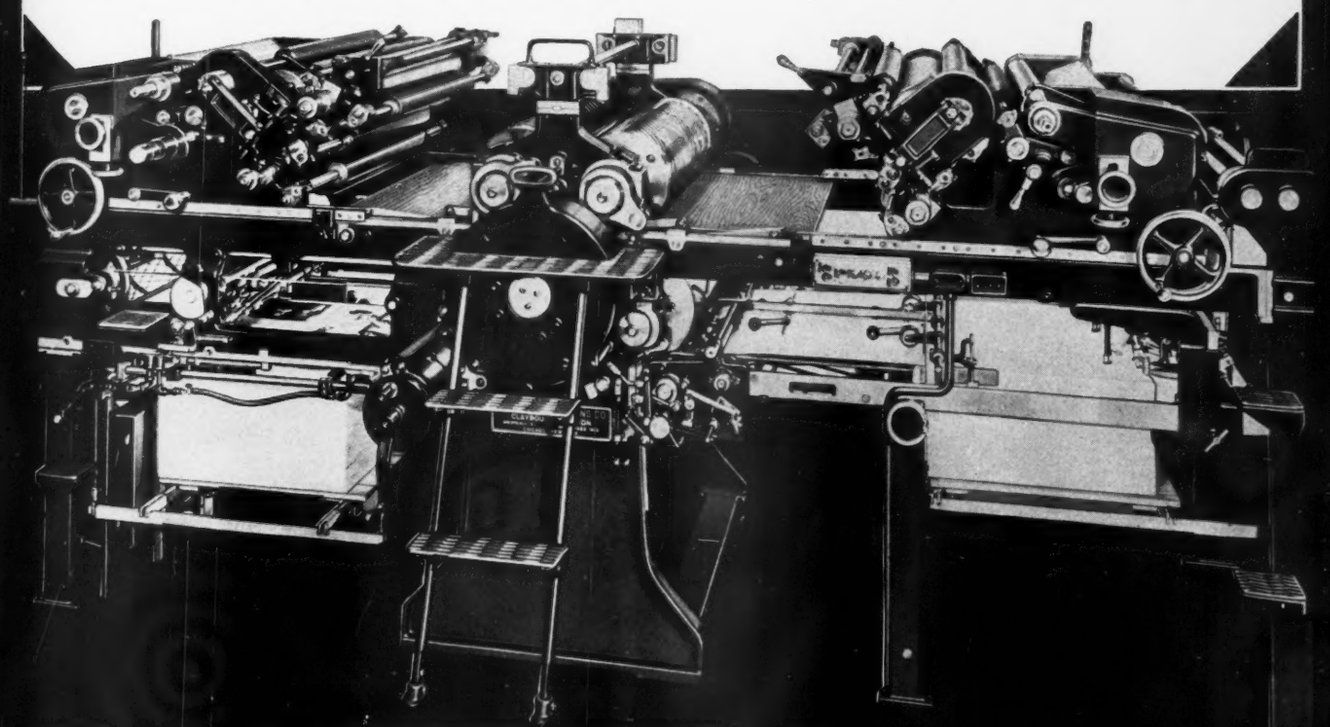


COTTRELL

two-color rotary press

★ **it *practically eliminates re-dusting* because it cleans both sides of the sheet.**

★ **it saves you $2000 to $5000 a year on bronzing costs.**

On all kinds of work, the Christensen Bronzer assures you of attractive jobs that keep customers "sold" on your plant.

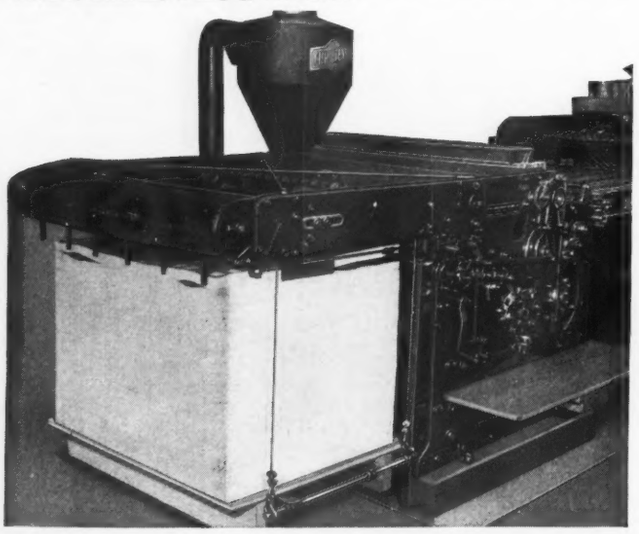
This fast, modern machine turns out sharp, clean work on smooth or coarse stock, light or heavy.

And you get this better work *without* endless fussing, interruption of schedules, and slowing up of your high-speed press equipment. The Christensen Bronzer drops sheet for sheet *in time with the press*—matching the production of your fastest units, and making bronzing work a joy instead of a headache. Almost complete elimination of powder dust makes your plant a healthier, more efficient place to work in.

The Christensen high-speed Bronzer saves you from $2000 to $5000 a year—enough, in many cases, to pay for itself in a year's time. New cost standards have been set in large and small plants everywhere. Lower labor costs—reduced spoilage—remarkable increases in production—have followed on every class of bronzing work. Write today for certified reports of surveys conducted by the A. C. Nielsen Company that verify the great savings and many advantages found in the Christensen Bronzer. List the make, model, and size of your own press equipment.

The Christensen Machine Co.
100 Fourth Street **Racine, Wisconsin**

Branch Offices and Distributors: CHICAGO, 608 S. Dearborn St.; NEW YORK, 561 Eighth Ave.; LOS ANGELES, Printers Supply Corporation; SAN FRANCISCO, Norman F. Hall Company; IN CANADA, Sears Limited, Toronto, Montreal, Winnipeg, Vancouver.



Vice President of National Printing Appliance Corporation, Ray Johnson, announces satisfactory results of three tests conducted to determine metal loss to line-casting machine matrices and magazines when subjected to improved cleaning process. Tests conducted by New York Testing Laboratories, Mergenthaler Linotype Co. and Intertype Corporation.

0.0000367 in.

Loss per matrix, per cleaning, in laboratory tests of improved cleaning process.

By STAFF WRITER

FOLLOWING recent improvement of his process for cleaning line-casting machine magazines and matrices, keyboard cams and channel entrances mechanically and chemically in one operation, Ray Johnson, Vice President of National Printing Appliance Corporation, has announced the results of tests conducted by New York Testing Laboratories, Mergenthaler Linotype Co., and Intertype Corporation. According to Mr. Johnson, in two of the reports submitted, it is stated directly that the new Klean-O-Mat Process improves the co-efficiency of friction, and matrix reference character visibility and does not harm the "false walls" usually formed at the sides of the casting cells of matrices after having been in use for a time. In the tests conducted by the New York Testing Laboratories it was determined that the metal loss per matrix per cleaning was 0.0000367 in. (three hundred and sixty-seven ten-millionths of an inch) . . . "an inconsequential figure," it is stated in the report, "because if a font of matrices were cleaned three times a year for ten years the total loss would still be well inside the allowable loss limits."

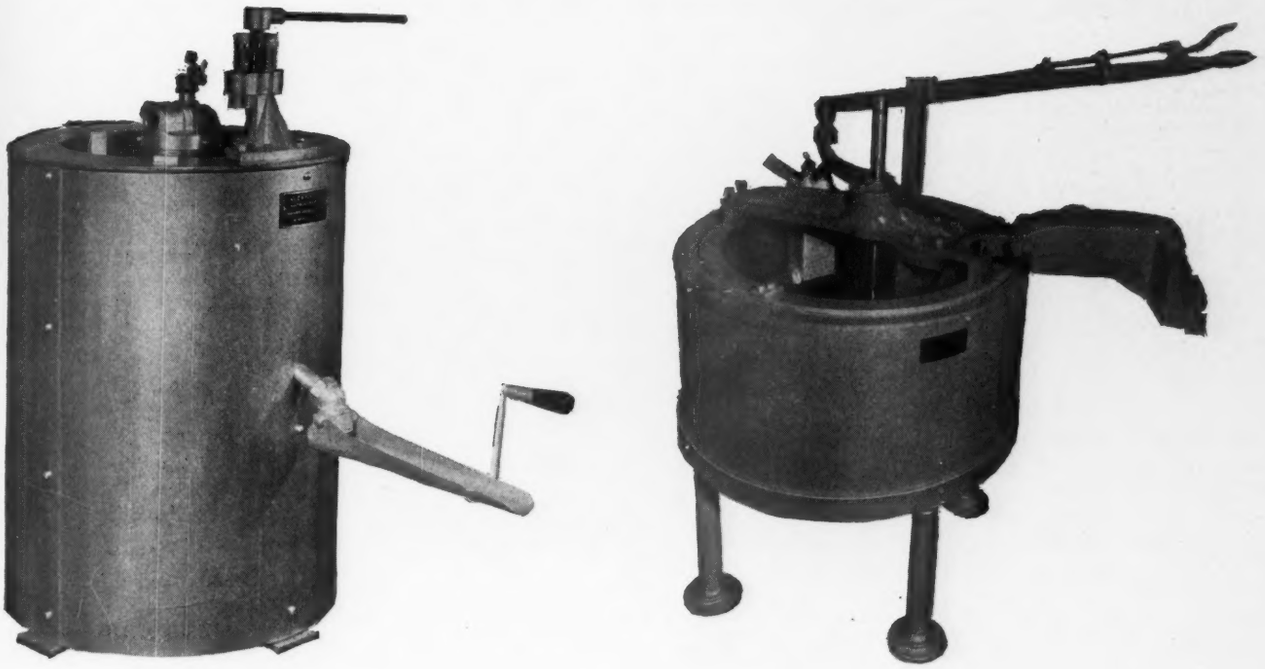
Mr. Johnson reports that in conducting the tests referred to above the most important steps stripped of as much technical language as possible, were as follows:

At the New York Testing Laboratories, magazines and fonts of matrices which had been used in regular production were selected which carried a liberal accumulation of graphite, oil, dirt, corrosion, etc. Many of the matrices were in abnormal condition.

The first step was to run out a goodly number of matrices, mark them with a scriber, carefully measure them with a micrometer and run them back into the magazine. The magazine was then given the test for co-efficiency of friction to determine the exact angle at which the matrices would begin to flow. All findings were carefully recorded to be checked against later.

The second step consisted of weighing the magazine containing the font of matrices on Toledo scales which were found to be accurate to one-fifth of an ounce over the entire dial. Next, the magazine, containing the font of matrices was placed in the tank of the Klean-O-Mat machine and subjected to the cleansing operation. After cleaning and drying, they were weighed again. All matrices were then run out of the magazine and both

KEMP *at the* BUNG • • •
and KEMP *at the* SPIGOT!



Following the amazing sweep of **Kemp Immersion Melting** (with gas) through the Stereo Departments of American Newspapers, alert publishers are now securing the same Kemp economy in remelting.

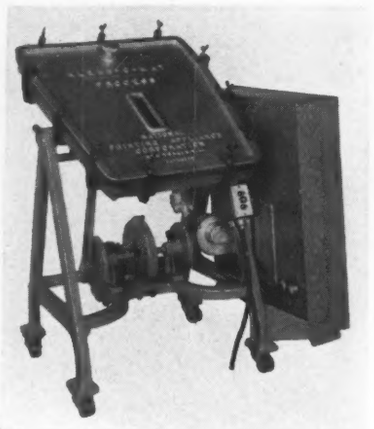
Above left is the 2,000 pound **Kemp Immersion Remelt Pot** (with draw-off valve) installed by the Brockton Enterprise. At the right is the 32 inch, 4,500 pound flat cast **Kemp Immersion Remelt Pot** (with pump) installed in the composing room of the Washington Star.

For both of these publishers **Kemp** saves money, saves time, reduces dross in stereo melting. For both **Kemp** guarantees 40 per cent fuel saving — that is modesty, not bragging . . . So both are now stopping remelt losses *the same way*. Maybe you ought to check this. Address **The C. M. Kemp Mfg. Co., 405 East Oliver Street, Baltimore, Maryland.**

KEMP of BALTIMORE

magazine and matrices were weighed separately, the readings being recorded as before.

The matrices were then run back into the magazine and placed in machine tank and the cleaning process repeated, including the placing of the magazine con taining the matrices in the drying cabinet. After drying



Late Model Klean-O-Mat Machine. Magazine containing matrices is placed in container at left and rocked in solution. After cleaning and rinsing, magazine is placed in electrically heated oven at right to dry.

the weights as previously described were checked and the matrices which had been scribed were measured with a micrometer to determine what loss had taken place.

Later, when all tabulations had been worked out, it was found that the loss of brass amounted to only five hundred and seventy-five ten-thousandths of 1%, or 0.0000367 in. (three hundred sixty-seven ten-millionths of an inch) per matrix. The allowable loss per matrix per cleaning, based on 0.002 in. as the total over-all operating tolerance, is 0.0000633 in. (six hundred thirty-three ten-millionths of an inch). Thus, the safety margin per cleaning, based on three cleanings per year for ten years, is 0.00002996 in., or a leeway of 81.7%.

The negligible loss recorded, the Laboratories stated, represents

> the extreme that could be expected because the second cleaning took place on bare brass and there was not the usual coating of graphite, grease, products of corrosion, etc., which would normally offer resistance to the cleaner.

In summarizing their findings, the New York Testing Laboratories determine complete absence of harm to the "false-walls", the clean results, improvement both in visibility and co-efficiency of friction.

Besides the tests conducted by the New York Testing Laboratories, tests were made by the Research Department of Mergenthaler Linotype Co., and by Intertype Corporation. Tests were conducted by the Mergenthaler Company along the lines followed by the New York Testing Laboratories, augmented by additional standards of their own. Intertype engineers made their tests in their own way.

In the report submitted to the National Printing Appliance Corporation by R. R. Mead, Director of Research and Development, of Mergenthaler Linotype Company it is stated:

> It is our opinion that if the cleaning procedure prescribed is adhered to, and the chemical solutions maintained, this improved Klean-O-Mat Process will not result in damage to matrices, magazines or escapements, and that the results will be eminently satisfactory.
>
> . . . the small loss which now results with the new Process is negligible when considered over the normal life of a font. Introduction of the No. 1 Compound, or pre-cleaner, has made it possible to use your Klean-O-Mat Compound No. 2 in a much weaker state and should matrices, for any careless reason,

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AS NEW AS OUR NEW MODERN FACTORY
THE NEW STAR NON-SCRATCH HALFTONE BLACK . . .

- Greater density of color.
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- More scratch proof than ever.
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A Trial order will convince you—

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In Your ELECTRIC POT
Control of Temperature

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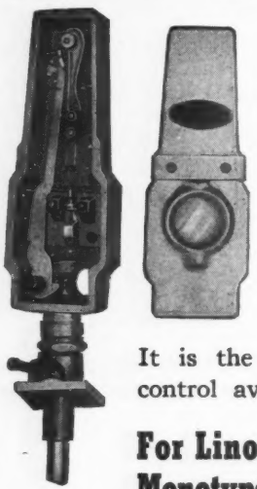

Are extremely efficient in regulating temperature ● More than two thousand sold over a period of years ● Simple in construction. ● Cover removed by a "Push" ● Guaranteed.

It is the cheapest high grade control available.

For Linotypes, Intertypes, Monotypes, Ludlows, Elrods

Ludwick Thermostat, Complete . . $20.00
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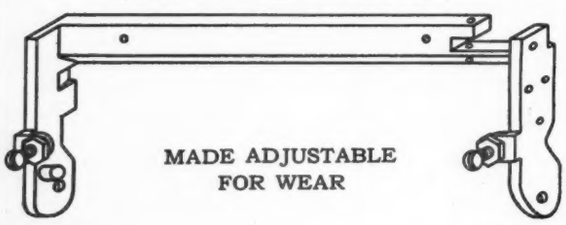

D2733A **$6.75**
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ONE CUSTOMER WRITES:

" . . . incidentally your ACE Matrix Delivery Belt has anything skinned in the world."

Linotype Parts Company

NEW YORK, N. Y. 203 Lafayette St.
KANSAS CITY, MO. 314 West 10th St.
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be left in the solution longer than the time prescribed no further metal loss would follow.

"In the report," Mr. Johnson states :

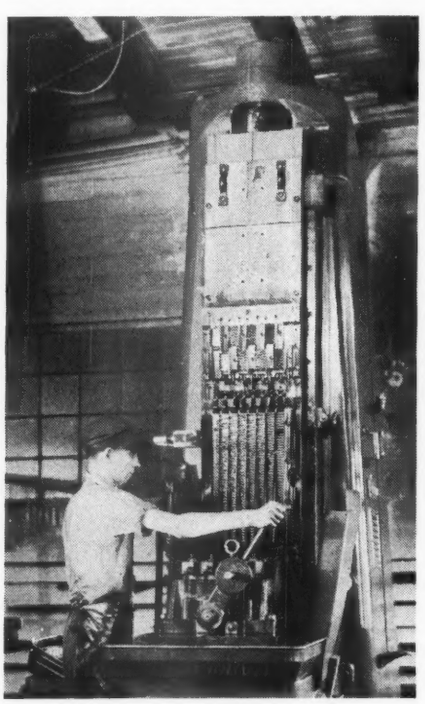
Mr. Mead further commented on the good cleaning job, the improvement in the visibility of matrix reference characters, improvement in co-efficiency of friction and the fact that false walls had not been harmed. He, also, stated that Linolite magazines came out bright and clean with no attack on the metal and that the magazine escapements came out clean and free from dirt and grease, the ferrous metals not having been attacked or corroded in any way.

Respecting the findings of Intertype Engineers, Vice President A. T. Mann of Intertype Corporation stated:

Having examined the matrices before and after . . . we found the difference in thickness of the matrices after washing was 0.000015 in. (one hundred fifty ten millionths). This difference, in our opinion, represented practically only the amount of dirt or oxide film removed from the raw brass. Our careful examination showed there was no apparent corrosive effect on the raw brass. . . .

We, of Intertype, therfore do not hesitate to say that we cannot discover any detrimental effects as a result of the washing on either the matrices or magazines used in this demonstration.

Blanks out quoin wedges



This illustration shows one of the machines used in the manufacture of Challenge Hi-Speed Quoins. It is a 10 T. Cincinnati Broach and is driven by a 25 h.p. motor. This particular machine cuts the wedges out of blank steel stock for six different sizes of quoins. Because of the installation of modern precision machines of this type, the Challenge Machinery Company reports increased operating efficiency as well as accuracy in manufacturing. Waste time has been reduced to the minimum and assembly of quoin parts is accomplished without delay or difficulty. Challenge quoins are constructed of steel cadmium plated in one self-contained unit.

$1565 INVESTMENT SAVES MANUFACTURER $1900 YEARLY

Investment of $1565 in needed electric apparatus annually saves $1900 for the Harris-Seybold Potter Co., Cleveland, manufacturer of lithographic machinery. Company engineers, in collaboration with General Electric specialists, analyzed the set-up and decided to substitute a synchronous motor for an induction motor as well as install capacitors and a new method of metering. An additional aspect of the economy consists in the elimination, through use of a new power-distribution system, of the frequent interruptions that previously had swelled production costs.

13 More HOE

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The notable increase in the quantity and quality of today's magazines is accompanied naturally by an increased demand for Hoe Super-Production Magazine Presses... America's outstanding press equipment.

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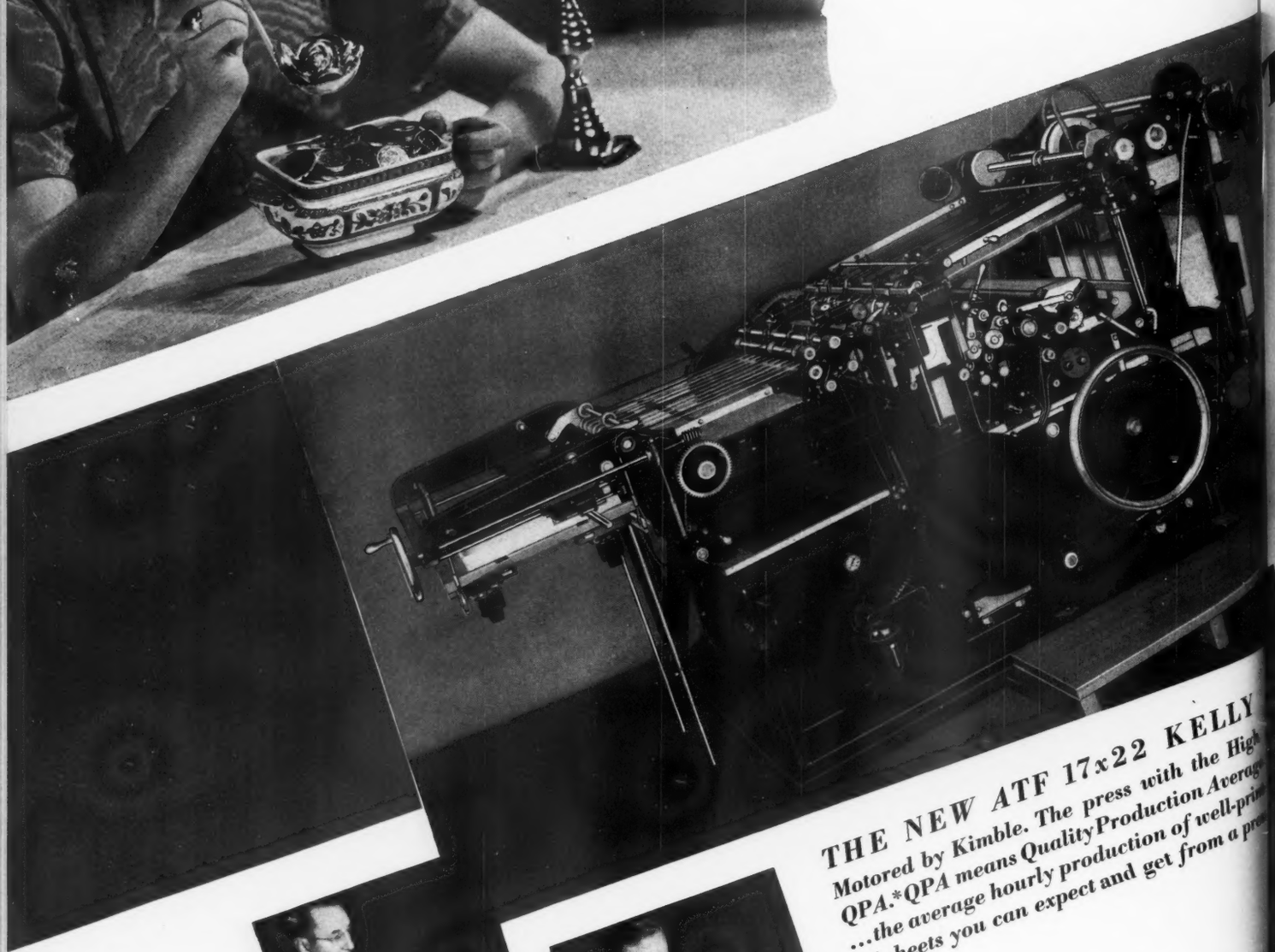

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Motored by Kimble. The press with the High
QPA.*QPA means Quality Production Averag
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OWNER'S GRAVY . . . "well-pleased on full capacity sheets with the coverage and production of our 17x22." Mr. P. E. Beaver, owner, The Beaver Press, Conshohocken, Pa.

PRESSMAN'S GRAVY... "fifteen years on Kellys, and the 17x22 is ideal for simplicity, roller coverage and positive makeready." Harry E. Hockett, pressman, The Beaver Press, Conshohocken, Pa.

S "GRAVY"

Thousands of Extra impressions a week with the New A·T·F 17x22 Kelly

Spend less time in getting your work to rolling . . . less time in press preparation and makeready . . . get several thousand extra impressions a week, "gravy." In any shop this means extra profits on long and short runs, process color or straight black work.

The New ATF 17x22 Kelly is dominating pressrooms because it prints and bleeds the most popular size in commercial printing, 8½x11 forms 4-up. Its low cost, high speed production in a wide range frequently makes it more economical than large-size presses, in your own shop or in the shop of a competitor. Quick get-away due to easy makeready, plenty of room at form, cylinder and fountain mean more productive press hours. And, once a form is made ready on the New ATF 17x22 Kelly it stays made ready. The job keeps rolling. There's ample distribution of well-worked-up ink, quick and easy control of register impression and speed. Many minor adjustments can be made without stopping the press. The pressman's work on the New ATF 17x22 Kelly is simplified by time and labor-saving features built into it. With a speed range of 2800 to 4200 impressions an hour you are assured of High QPA*.

•

Automatic lubrication; reloading feed table; swing-back delivery with automatic lowering device; and smooth, handwheel control of press speed, no need to find correct "step." Find out about the New ATF 17x22 Kelly . . . your ATF Salesman has all details.

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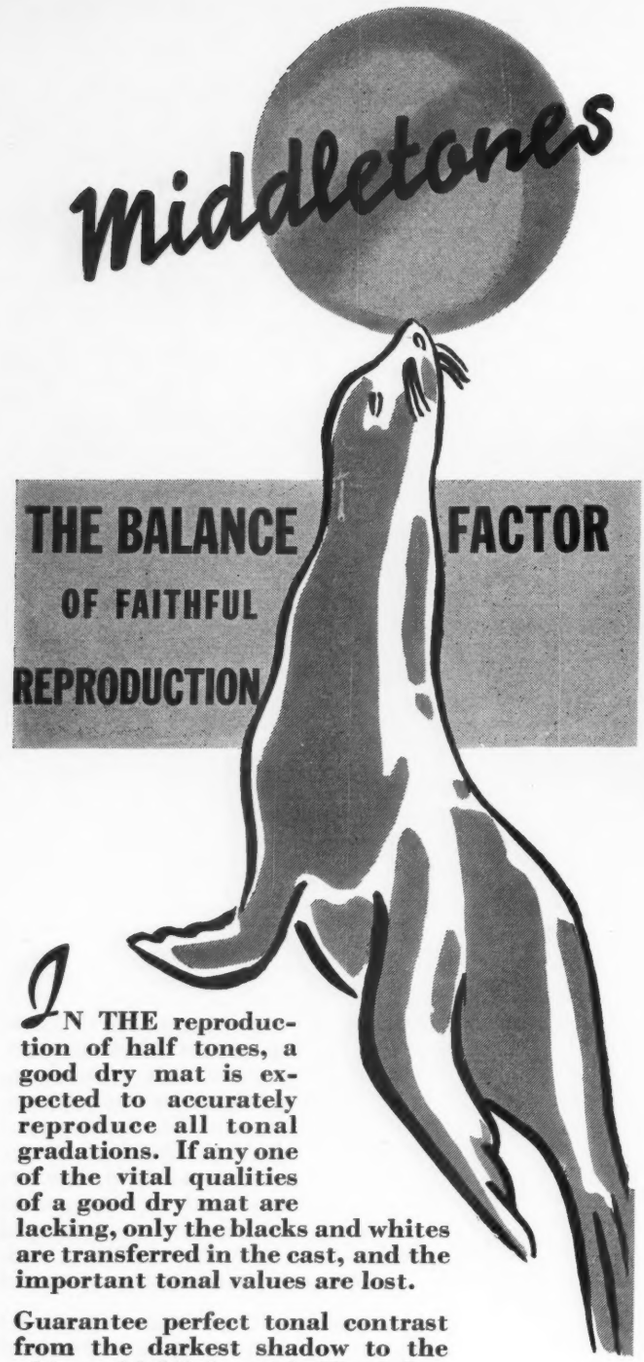

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Guarantee perfect tonal contrast from the darkest shadow to the whitest highlight with Wood Dry Mats—the popular favorite for faithful reproduction!

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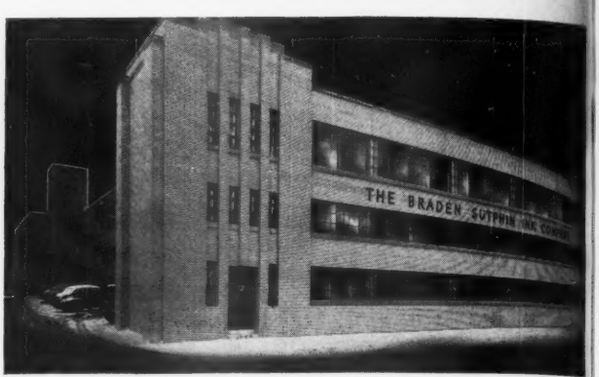
Complexity

Of ink making revealed by visit to new Braden Sutphin plant

BY STAFF WRITER

ESSENTIALLY, ink is a varnish colored with pigment. Sounds like a simple statement, but it becomes rather complicated in meaning after one has been taken through the new ink factory of the Braden Sutphin Ink Company in Cleveland and has learned something about the constant laboratory and color control methods necessary to the manufacture of printing ink. In the raw materials department of this factory are kept



View of Braden Sutphin new ink factory in Cleveland.

on hand at all times approximately 5000 raw materials of different kinds, 2000 of which are used frequently in compounding letterpress, offset, water color and decalcomania inks furnished to customers. In addition, barrels of linseed oil for making varnish are kept on hand. The ink business becomes further complicated to the layman when he is shown the fourteen mills in the grinding room on the first floor. Two more are being added, one of which is a colloidal mill for extremely fine grinding of soft materials at high speeds.

The modern ink manufacturing plant of the Braden Sutphin Ink Company occupies a corner lot facing Chester Ave. and 37th St., in Cleveland. The three-story building, covering an area 165 ft. by 125 ft. is made of steel and concrete with buff brick facing.

Company offices, reception room, laboratories, testing laboratories, color matching room, kitchen and entertainment rooms (corresponding to the second floor elevation) are all located on the mezzanine floor around all four sides of the building. All of these rooms having outside exposure also open inwardly to a gallery running around the inside open space where one can look down to watch the ink mills in operation on the ground floor.

In the chemical laboratory are to be found special kinds of equipment for testing all raw materials. None of the raw materials shipped to the factory such as color powders, toners, oils and varnishes, can be used for ink-making purposes until the chemical laboratory has approved their quality.

The manner in which visitors are conducted through the new Braden Sutphin ink factory impresses one with the highly scientific aspects of the ink-making business and the meticulous care exercised to see that all materials meet certain rigid standards. The ink-making industry, as stated above, exercises constant control over the quality of materials used. Nothing is taken

View of grinding room in new ink factory of Braden Sutphin Ink Company, Cleveland.

for granted. The Braden Sutphin organization, in fact, constantly polices itself.

Adjoining the chemical laboratory is the lithographic laboratory where all inks for offset-lith printing are tested. Unlike letterpress ink testing where a 50-sheet test run indicates that ink will be satisfactory for a 50,000 run, the inks used in offset printing must be tested with infinitely greater pains. In offset printing, if the ink has not been compounded just right, it may commence to scum after the press has been in operation for one or two hours. In fact, in the Braden Sutphin plant it is sometimes necessary to make a 10,000 test-run to be certain the inks will be satisfactory. For this purpose, two offset presses are operated in the laboratory. A considerable variety of various kinds of paper stock is kept on hand at all times for test runs. The operating cost of this laboratory is cheerfully maintained by the Braden Sutphin Company as its contribution to the lithographic printing industry.

A completely equipped research and experimental laboratory is maintained for the study of fundamental problems, not only in ink-making, but in printing, paper, color, and so on. Printers' problems may be

(*Continued on Page* 32)

Order Display Space Early

Manager J. Johnson of the Royal York Hotel, Toronto Canada, suggests that all manufacturers and suppliers expecting to secure display space for printing equipment and supplies at the time of the twelfth annual A.N.P.A. Mechanical Conference, reserve their booths at the earliest moment.

Full information about booths, rental charges, etc., may be secured by any American manufacturer or supplier from Mr. Johnson.

There is no duty on exhibits from American manufacturers. However, it will be necessary to comply with a few simple regulations in order to secure duty free entry into Canada from the United States. Samples, literature, exhibits or parts of exhibits should not be brought in by motor car on account of probable customs difficulties, but should be shipped direct to Toronto.

Maintain Even Printing Surfaces!

Mount your cuts with Booth's Zink-Cut Cement to be sure that even printing surfaces are retained. This cement will not increase the height of cuts if applied according to the manufacturer's simple directions.

Investigate this easy and economical method of mounting cuts immediately if you have not done so already. Fill in the return-card on the last page of this issue and we will send you complete information on the use of this cement.

You will find it the dependable way of mounting all kinds of cuts to wood and metal bases. It is easy to use and economical; it will give you the best results.

Prices: 75c for a large tube; $6.00 per dozen

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Booth's Green Rubber Keyboard Rolls

hold their resiliency because they are made almost wholly of live, active rubber. They are round from end to end—a uniform product. Booth Rolls are colored green.

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Crepe finish or Corrugated Cam Tread $1.30 per pair—$7.00 per dozen

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November 3, 1937

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General Electric Building
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New York, N. Y.

Attention: Mr. A. R. Doumaux

Gentlemen:

We want to take this opportunity to express our appreciation, not only for your prompt service, but also for your Engineering advice when replacing our old D. C. equipment with your A. C. motors and controls.

Furthermore we would commend the efficient way in which this change-over was handled by your motor dealer The L & P Electric Company, with the installation of 517 motors together with new methods of drives and speed controls. We have had no loss of production during these extensive changes covering four buildings consisting of 27 floors.

We are now a 100% G. E. equipped plant and very well satisfied.

Yours very truly,

BOORUM & PEASE COMPANY

John W. Sawyer

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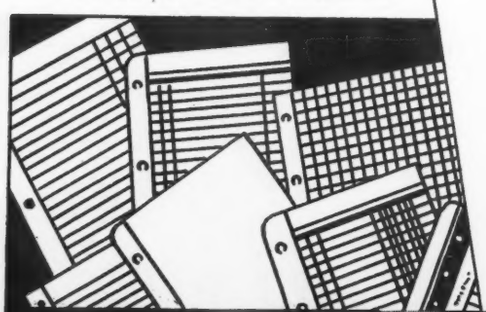
A few exclusive standard products made by the Boorum & Pease Co.



One of the 16 G-E. equipped power cutters in the loose-leaf paper department of Boorum and Pease Company, Brooklyn

Satisfied
TO THE TUNE OF 517 MOTORS

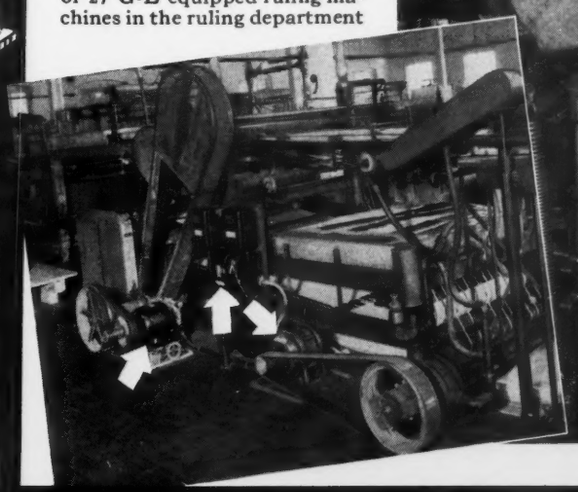
G-E EQUIPMENT involving 517 motors and related control was chosen by the Boorum & Pease Company, a leading producer of blank books and loose-leaf covers and forms, when d-c equipment was replaced by new and modern a-c apparatus. Replaced without a hitch in production!

This equipment was chosen because of its reliability, simplicity, and low-cost operating features. For each machine the individual requirements were studied and the best types of drive and control for fulfilling these requirements were recommended by the General Electric printing-equipment specialist. This engineering advice is a regular part of General Electric's service to the printing and kindred industries.

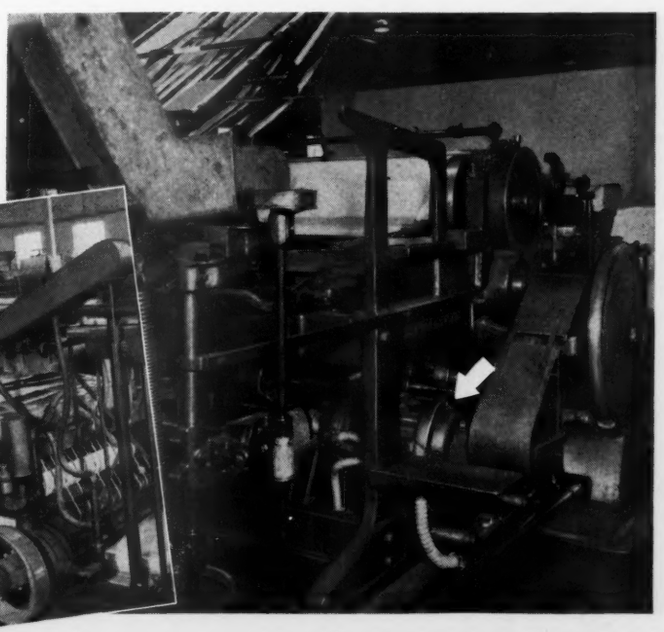
Boorum & Pease Company writes that the installation was made with "no loss of production during these extensive changes covering four buildings." This installation was made by the L & P Electric Company, of 684 Bedford Avenue, Brooklyn.

Why not investigate the savings that may be made possible by modernization of your plant equipment? For further information, call the nearest G-E sales office, or write General Electric, Schenectady, N. Y.

Pony Miehle flatbed press driven by a G-E 2-hp induction motor controlled with a belt-driven floor-mounted plugging relay



Hickock ruling machine driven through a Reeves adjustable speed transmission by G-E motors and control. This is one of 27 G-E equipped ruling machines in the ruling department



GENERAL ELECTRIC

Filing No. 8609

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The Publisher Asked, "Is it good practice?"

HE had been brought up to the old fashioned way of throwing back first casts, regarding them just as mat driers. So when he saw the stereo crew shooting first casts down to the press room, he naturally wanted to know about it.

So the stereo foreman told him that nobody wasted first casts if they used Certified Mats. His check-up confirmed this and he entered a mental credit for speedy Certified production.

For dependable stereotyping, rely on Certified Mats, made in the U. S. A.

CERTIFIED DRY MAT CORPORATION

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Certified
DRY MATS

Complexity

(*Continued from Page 29*)

brought here for careful study, analysis and recommendation.

On the mezzanine level will be found the Color Studio. This studio has been set up for investigating the physics of color, the psychology of color and for pure research. Several thousand dollars' worth of equipment is being installed.

A color matching room is located at the north exposure of the building on the mezzanine floor. This department might also be called a color determination room. All of the formulae used in the factory are made up in this department. Color control and exact matching of shades are executed here. A hundred feet of north light windows promote excellent daylight facilities. Special daylight lamps provide artificial illumination for night work. All tables and benches are provided either with plate glass or monel metal tops. Torsion balance scales measuring up to a fineness of 1/1000 gram when required are used.

In this department are cabinets with shallow drawers. The drawers contain many samples of the different inks required for regular and special purposes. Each of the small round tin boxes containing a sample of ink is labeled on the cover with a symbol to indicate the formula and index number. If a customer sends in a repeat order for a certain ink, it can be matched perfectly from the formula and by comparing the new ink with the control sample which is kept on file. At the present time there are approximately 38,000 samples of ink in the control cabinets.

All orders for special inks weighing less than 25 lbs. are made up in the control room, three mills being kept in this room for that purpose.

A Claybourn precision proof press for four-color process work, a No. 3 Vandercook and a Potter proof press are used in the control room to obtain specimen proofs of letterpress inks.

Another unusual feature about the new factory is the varnish cooking department. Here oils, varnishes, resins and compounds are cooked in monel metal kettles with automatically controlled electric heat with respect to time and temperature. This exacting control assures more uniform products than can be produced by the older methods of varnish cooking.

A modern kitchen and other entertainment facilities are located at the southern exposure of the mezzanine floor.

ANNOUNCES 24 AND 18-PT. COMBINATION

One of the many two-letter display combinations now available for the Linotype is 24-point Bodoni Bold Condensed with 18-point Bodoni Bold Italic.

"This combination should be particularly interesting to newspaper editors and publishers," says C. H. Griffith, Mergenthaler vice president in charge of typographic development. "Because both faces have exactly the same set width makes it possible for us to combine these display fonts on the same matrices."

Home Town Team Comes in Second

Home Town Team Comes in Second

SAVE ON YOUR ROLLERS

. . . and we mean SAVE TIME AND TROUBLE as well as MONEY. Vulcan Gelastic Rollers make the pressman's work easier—and eliminate one source of worry for the superintendent—because of their long life, the absence of all danger of melting (even on continuous runs in the hottest weather), freedom from humidity effects, full efficiency in cold weather, time saved by avoiding frequent adjustments, and the elimination of all press delays due to roller troubles. Write for folder to Vulcan Proofing Company, 58th Street and First Avenue, Brooklyn, New York.

USE GELASTIC ROLLERS

EDES PHOTO-ENGRAVING

EDES SUPERFINE QUALITY ZINC

ZINC

THE STANDARD FOR MORE THAN 80 YEARS

ETCHES CLEAN AND QUICK

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Thompson-Hayward Chemical Co., 909 2nd St, So., Minneapolis, Minn.
Metzger Photo Supply Co., 1091 So. Main St., Akron, Ohio
G. C. Dom Supply Co., 125 East Pearl St., Cincinnati, Ohio

FAMOUS BAD GUESSES

● The man who guesses about the condition of his type metal is also skating on thin ice and the result can be equally disastrous. In either case it is better to be sure . . . and safe . . . by not taking chances. Guessing about type metal is expensive, wastes time and causes endless trouble. It may be the cause of a job being refused, and even cause the loss of a customer. Imperialized plants do not guess, for *Imperial takes the guess out of type metal.* These plants do their metal-correcting systematically and economically. They add Imperial Plus Metal pound for pound of dross skimmed off . . . no guessing.

This insures sharper, solid casts, lower casting temperatures, less dross and less fuel consumption. It eliminates costly recasts and production losses. To find out how to stop guessing about your type metal, get the details of the Imperial Plus Plan.

THE IMPERIAL TYPE METAL CO.
Philadelphia • New York • Los Angeles • Chicago

Imperial
TAKES THE GUESS OUT OF TYPE METAL

Develops Automatic Ejector-Mold Change

By H. R. FREUND*

A NEW six-mold disk, operating changes for which are synchronized with an automatic ejector blade changing mechanism, has been announced by Intertype Corporation. The mold disk carries six 30-em molds and its diameter is the same as that of the conventional four-mold disk. The six molds provide for six different sizes and lengths of slugs in any measure up to 30 ems or any in-between assortment.

Operating changes from one mold to another are accomplished by manipulating a handle mounted in front of the knife block instead of the usual mold disk turning pinion handle at the left of the mold disk. As

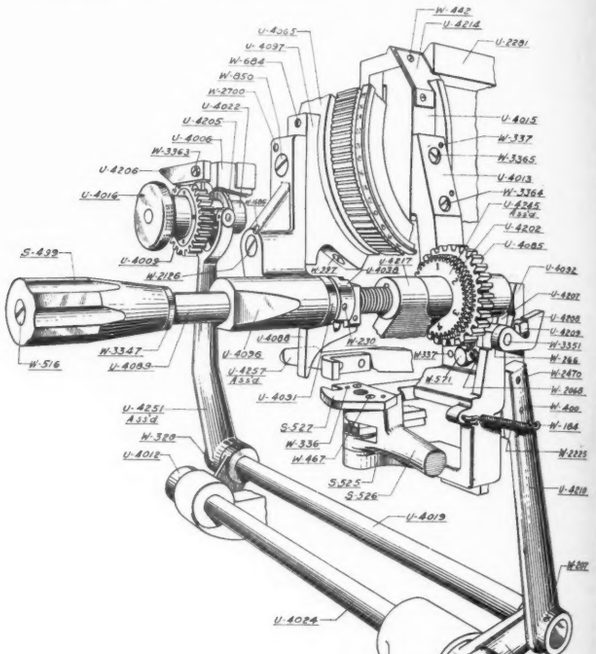


Fig. 1

is stated above, turning the handle changes any mold to operating position and at the same time changes the ejector blade automatically.

The molds used in the new six-mold disk are shorter than those now used in the Intertype four-mold disk. Universal adjustable molds may be used for solid slugs from 5 to 14 points body thickness. Triangular shelf molds and high alignment molds are provided for recessed slugs from 18 to 48 points body thickness.

Several safety devices have been incorporated in the new mechanism. One of these prevents operation of the machine while a mold change is being made. Another device reminds the operator to check the ejector blade setting if he turns the mold disk by means of the mold disk pinion instead of the new operating handle.

The new six-mold disk was developed especially for use with the new Intertype four-magazine machines.

Those who are familiar with the construction of the former manually-changed ejector blade will have no difficulty in comprehending the motions involved in the new mechanism to synchronize the proper ejector blade with any mold in the six-mold disk.

*Chief Engineer, Intertype Corporation, Brooklyn, New York.

The actual ejector blade selecting element is any one of six selecting stops or studs, shown at U-4200, Fig. 2. The length of blade to be selected is determined by the length of each of the six stops of which there is one stop for each mold in the six-mold disk.

In analyzing the movements involved when changing from one mold-ejector blade to another, it is well to keep in mind that the actual change of the blade itself is accomplished by mechanical means in place of the former manual means and that the ejector blade magazine and locating lever mechanism function as in the manually-changed ejector blade mechanism.

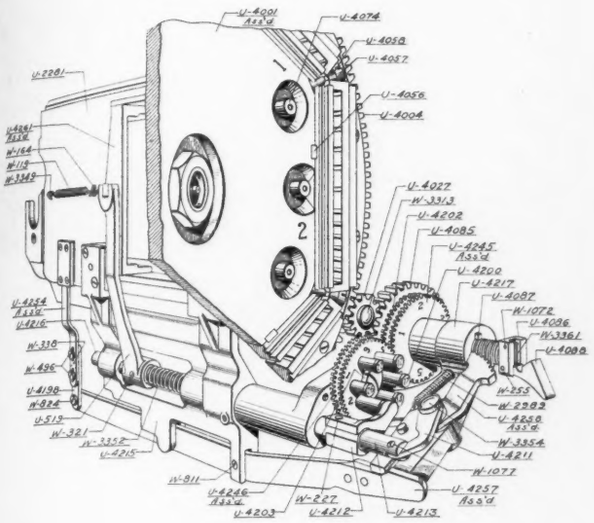


Fig. 2

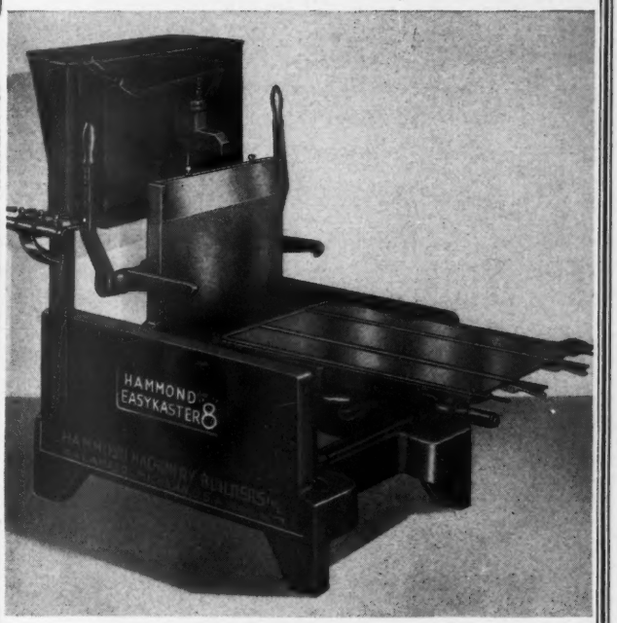
Mold Disk Pinion Operating Mechanism.—The mold disk pinion (U-4009) Fig. 1, is disengaged from the mold disk gear when the operating handle (S-499) is pushed in. The operating handle (S-499) Fig. 1, is attached to a shaft (U-4089) which is keyed in a supporting casting (U-4096) fastened to the knife block (U-4065). On the end of the shaft is a coupling (U-4038) which engages a lug on the mold selecting pinion shaft. When the operating handle is pushed in, the coupling engages the lug on the mold selecting pinion shaft and moves the shaft towards the back of the machine. The shaft in turn bears against a shoe (U-4092) on the right-hand mold disk pinion operating lever (U-4210), which is pinned to the mold disk pinion operating lever shaft (U-4019). On the opposite end of the shaft is pinned the left hand mold disk pinion operating lever (U-4251). This lever is forked at its upper end and engages a sleeve (U-4205) on the mold disk pinion. Consequently, when the right-hand mold disk pinion operating lever is pushed back by the mold selecting pinion shaft, the left-hand lever bears against the mold disk pinion sleeve and moves the pinion back and out of engagement with the mold disk gear, leaving the mold disk free to be turned.

Ejector Shifting Mechanism.—The same inward movement of the mold selecting pinion shaft which disengages the mold disk pinion from the mold disk gear also shifts the ejector blade magazine to position in preparation for the selection of the ejector blade. A circular rack is milled in the front section of the mold selecting pinion shaft (U-4086) Fig. 2. The ejector locating lever operating lever (U-4258), pivoted on a stud (W-3354), has a toothed segment at its upper end which meshes with the rack on the mold selecting pinion shaft. When the shaft is moved in, the segment follows the rack and swings the ejector locating lever operating lever through a small arc. The lower end of the operating lever bears against a lug on the ejector locating lever (U-4257) and depresses the lever. The ejector locating lever is pivoted on a screw (W-811) in the ejector shifter bracket (U-4215). Consequently, the ejector locating plunger (U-4254) is raised, causing the upper end of the plunger to enter the ejector holder lock. This action locks the ejector blade holder in position for the shifting of the ejector blade magazine.

As the ejector locating lever operating lever (U-4258) depresses the ejector locating lever (U-4257), it also shifts the ejector blade magazine. There is a pin in the lower end of the ejector locating lever operating lever. This pin bears against the ejector shifter lever (U-4211), which pulls the ejector shifter rod link (U-4213) towards the front of the machine. The ejector shifter fork (U-519), pinned to the ejector shifter rod (U-4216), moves forward with the rod and shifts the ejector blade magazine until the smallest ejector blade is in position. This movement of the ejector blade magazine is only preparatory to the selection of the proper ejector blade.

Mold Selecting Mechanism.—The mold selecting mechanism is also engaged for operation when the main operating handle (S-499) Fig. 1, is pushed in. The mold selecting pinion shaft (U-4086) Fig. 2, is keyed in its supporting bracket (U-4217). The key in the shaft aligns with

The Caster with the GUARANTEE



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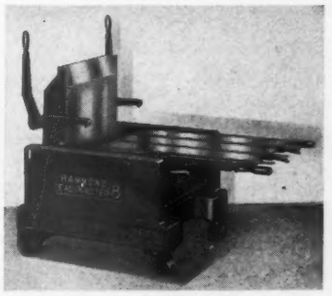

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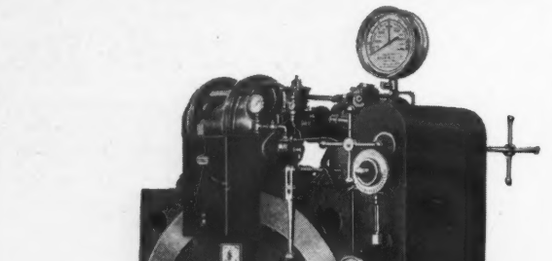

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keyways in the mold selecting pinion (U-4085) Fig. 1, and the ejector blade selecting gear driver (U-4202). When the mold selecting pinion shaft is moved in by shaft (U-4089), the key in the mold selecting pinion shaft enters the keyways in pinions (U-4202) and (U-4085), engaging the pinions with the shaft. At the same time, the key in shaft (U-4089) clears the keyway in the bracket (U-4096), making it possible to turn the operating handle (S-499). The mold selecting pinion (U-4085) Fig. 2, meshes with the mold disk idler gear (U-4027), which in turn meshes with the mold disk gear (U-4004). When the main operating handle is turned, therefore, the mold selecting pinion turns the mold disk through the mold disk idler gear. One complete turn of the main operating handle will bring an adjacent mold into position.

Ejector Blade Selecting Mechanism.—The same rotary movement which brings the mold into position also moves the proper ejector blade selecting stop into position. The stops (U-4200) Fig. 2, are mounted on a gear attached to the ejector blade selecting gear (U-4246). This gear meshes with the ejector blade selecting gear driver (U-4202), which is engaged by a key (U-4087) on the mold selecting pinion shaft (U-4086) as previously described. As the mold selecting pinion shaft is turned by the main operating handle, the driver gear (U-4202) turns the ejector blade selecting gear (U-4246). The selecting gear is timed in relation to the mold disk. As the desired mold is brought to operating position, the ejector blade selecting stop (U-4200) corresponding with the mold is positioned directly in front of the lug on the ejector shifter rod stop (U-4212). For example, if mold number 4 is set for a 20-em slug and is placed in operating position, stop number 4 will come to position in front of the ejector shifter rod stop. The ejector blade selecting stop in this instance will be just long enough to permit the 20-em ejector blade to come to position when the mold change is completed by pulling out the main operating handle (S-499) Fig. 1.

Six numbers are stamped on the mold selecting indicator gear (U-4245) Fig. 2, which correspond to the numbers of the ejector blade selecting stops and the mold numbers. The numbers on the indicator gear register with a small window in the gear guard (guard is removed in Fig. 2). As a mold is placed in operating position, the number of the ejector blade selecting stop which is brought into position is indicated by the corresponding number on the indicator gear through the window in the gear guard. This makes it unnecessary to remove the guard in order to check the number of the ejector blade selecting stop with the number of the mold.

When the operating handle is pulled back to normal position, the mechanisms move automatically into operating position. After one complete turn of the operating handle (S-499) Fig. 1, the key in the operating shaft (U-4089) aligns with the keyway in the bracket (U-4096), permitting the shaft to move back into the bracket. A safety hook (U-4088) [shown both in Figs. 1 and 2] pivoted on the mold selecting pinion shaft engages the coupling (U-4038) Fig. 1, on the end of the operating shaft (U-4089). As the operating handle is pulled back, the hook draws the mold selecting pinion shaft back to normal position. This action disengages the key in the shaft from the driver gear (U-4202) and from the mold selecting pinion (U-4085), leaving the pinion and the gear free on the shaft. A spring (W-2225) fastened to the right-hand mold disk pinion operating lever (U-4210) pulls the lever back to normal position. This permits the mold disk pinion (U-4009) to remesh with the mold disk gear through action of a compression spring inside the mold disk pinion knob (U-4016). When the mold selecting pinion shaft moves back to normal position, the ejector locating lever operating lever (U-4258) Fig. 2, and the ejector shifter lever (U-4211) also return to normal position. This permits the tension spring (W-119) and the ejector shifter rod spring (W-3352) to move the ejector shifter rod (U-4216) and fork (U-519) back until the ejector shifter rod stop (U-4212) banks against stop (U-4200). When stop (U-4212) banks against the ejector blade selecting stop (U-4200) which is in position, the movement of the ejector blade magazine is halted and the ejector blade corresponding with the mold is left in operating position. The ejector locating plunger (U-4254) lowers out of engagement with the ejector blade holder lock, leaving the holder in position to be operated by the ejector lever.

P-Double-E File No. 1G.

INK COLOR SELECTOR

In addition to the News Ink Color Selector which was described and illustrated in the January issue of *Printing* EQUIPMENT *Engineer*, the Howard Flint Ink Company, Detroit, Mich., has published a commercial Printing Ink Color Selector suitable for suspension on a wall or other convenient surface. The Selector is divided into four sections as follows: One section shows graduated shades ranging from yellow to orange to brown; the second section shows 25 shades classified as reds; the third section shows purples and blues; the fourth section shows many shades of blues and greens.

Each of the color shades in the respective sections are printed on sheets of graduated size. Each ink is shown in solid color as well as various indicated halftone screens to give examples of color qualities. Manufacturer states "the visible arrangement of the Selector makes the choosing of harmonious combinations easy."

The size of the Selector is 10½ in. by 16½ in. A copy may be obtained by addressing the company as given above.

A. N. P. A. Mechanical Program

W E. WINES, A.N.P.A. Mechanical Department Manager, has announced the selection of committees for preparing and handling this year's program which will be presented at the twelfth annual mechanical conference to be held at the Royal York Hotel, Toronto, June 6, 7 and 8.

Through the selection by the A.N.P.A. Mechanical Committee of a broad section of the membership it is hoped to enlist the cooperation of the mechanical executives in the Mechanical Department. It is suggested that any executive who has ideas about the program send them to the chairman of the committee representing the mechanical department affected.

The tentative chairmen and their committeemen are:

Composing Room

D. A. Padgett, Milwaukee (Wisc.) *Evening Sentinel*, Chairman; Fred R. Connell, Atlanta (Ga.) *Journal;* Ed. C. Funk, Waterloo (Iowa) *Courier;* A. M. Jullien, Lansing (Mich.) *State Journal*, and H. J. Waite, Hamilton (Ont.) *Spectator*.

Pressroom

R. A. Cooke, Richmond (Va.) *News-Leader*, Chairman; Robert G. Angell, Ithaca (N. Y.) *Journal;* K. L. Gregg, San Diego (Calif.) *Union* and *Tribune;* Auburn Taylor, Charleston (W. Va.) *Gazette*, and Frank S. Duncan, Portsmouth (O) *Times*.

Stereotype Room

W. B. Astor, Jr., Memphis (Tenn.) *Commercial Appeal*, Chairman; Leslie J. Griner, Youngstown (O.) *Vindicator;* George H. Fuller, Cleveland (O.) *Press;* Otto Kurrle, Moline (Ill.) *Dispatch*, and J. J. McGoldrick, New Haven (Conn.) *Register*.

Engraving Department

W. S. Lund, Toronto (Ont.) *Telegram*, Chairman; D. D. Curriden, Minneapolis (Minn.) *Star;* Earl Currise, South Bend (Ind.) *Tribune;* Ted Hertzog, Westchester County Publishers, Yonkers, N. Y., and George Geist, Cincinnati (O.) *Times-Star*.

Problems of Small Newspapers

Russell B. Miller, Bloomington (Ill.) *Pantagraph*, Chairman; D. Phillip Young, York (Pa.) *Dispatch;* Louis G. Buisch, Hornell (N. Y.) *Tribune;* Chas. A. Frederickson, Westchester County Publishers, Yonkers, N. Y., and Eric Pape, Waterbury (Conn.) *Republican* and *American*.

General Subjects

C. J. Strang, New York *Times*, Chairman; J. J. Shea, Worcester (Mass.) *Telegram-Gazette;* Fred C. Hudson, Hearst Newspapers, Chicago, Ill.; H. T. Stanger, *Christian Science Monitor*, Boston, Mass., and Harvey Robinson, Detroit (Mich.) *Times*.

The province of this committee is to suggest subjects which do not concern some particular department but, rather, pertain to the newspaper plant as a whole.

Miscellaneous Subjects

C. H. Ruth, Washington (D. C.) *Star*, Chairman; G. A. Disher, Southam Newspapers, Montreal, Quebec, and T. A. Corcoran, Louisville (Ky.) *Courier-Journal*.

The function of this committee is to suggest items which do not fall under any of the six previous headings.

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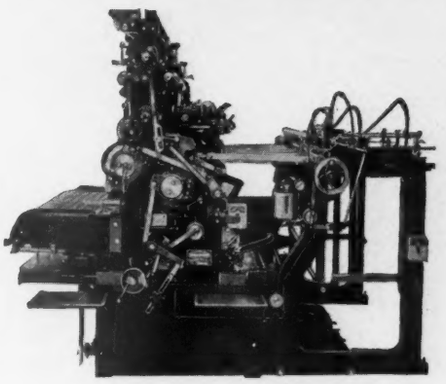

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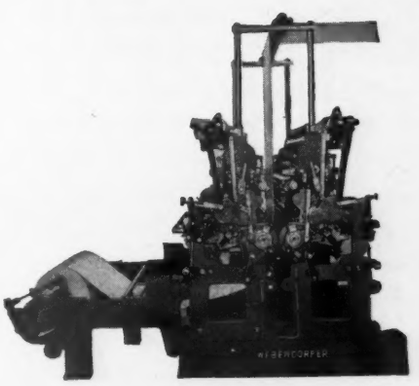

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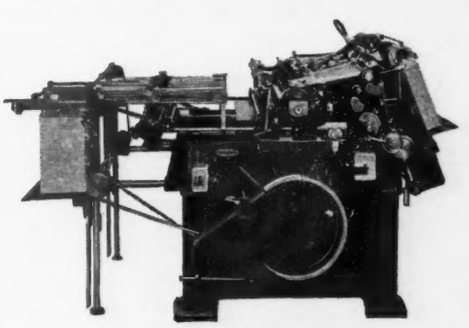

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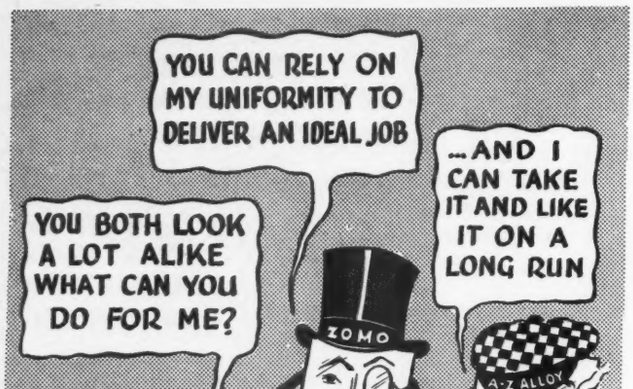
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Patents

Recently Granted

2,101,322. METHOD AND APPARATUS FOR MEASURING PROPERTIES OF INKS AND THE LIKE. Robert F. Reed, Cincinnati, Ohio, assignor to the Lithographic Technical Foundation, Inc., New York, N. Y., a corporation of Delaware. Application December 24, 1934. Serial No. 758,998. 9 Claims. (Cl. 265—11.)

1. In a device, a base and a pair of standards mounted thereon, a roller rotating substantially frictionlessly within the standards, means for controlling the temperature of the roller, a cradle mounted to rotate substantially frictionlessly about the axis of the first roller, the cradle comprising, a second roller normally in resting tangential contact with the first roller, cradle side members carrying the second roller, counterweights carried by the side members of the cradle, means for axially moving the second roller, means for disrupting the contact of the rollers, and a graduated beam and adjustable weight adapted to accurately dynamically balance the cradle.

2,102,033. METHOD OF AND APPARATUS FOR TRANSPORTING AND REGISTERING SHEETS. Ernest G. Rider, Philadelphia, Pa., assignor to Stokes and Smith Company, Philadelphia, Pa., a corporation of Pennsylvania. Application September 11, 1936. Serial No. 100,252. 33 Claims. (Cl. 271—48.)

1. In a system for tranporting sheets, as box wrappers, labels, or the like, the method which comprises pushing the rear edge of a sheet to effect movement of the sheet in a predetermined direction, and stiffening the sheet for movement as a whole by temporarily deforming the sheet to form one or more ridges extending substantially in line with the direction of movement.

2,100,003. STEREOTYPE PLATE CASTING MACHINE. Frank A. Foster, Maywood, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application April 10, 1935. Serial No. 15,508. 1 Claim. (Cl. 22—4.)

A machine for casting tubular stereotype plates including in combination a frame, an openable and closable cover, a hollow, water-cooled, pivotally mounted core movable between casting and delivery positions, the pivotal mounting for the core comprising hollow trunnions journaled in the frame, a water pipe within the core connected to one of the hollow trunnions acting as a water inlet, and a water outlet at the bottom of the hollow core communicating with the other hollow trunnion, and a stationary exterior pipe, receiving the discharged water from the trunnions, the pipe having its discharge end at substantially the level of the top of the core when in casting position.

2,100,346. INTAGLIO PRINTING ELEMENTS AND METHOD OF PRODUCING THE SAME. William N. Misuraca, Merrick, N. Y., assignor to Photo-Cylinder Corporation, a corporation of New York. Application June 8, 1933. Serial No. 674,802. 13 Claims. (Cl. 95—5.7.)

1. The method of preparing an intaglio printing surface, which comprises exposing a film to the object to be reproduced through a half-tone screen and through a diaphragm to produce a series of dots in certain portions of the film, exposing a film a second time to light having uniform intensity and through a half-tone screen and a diaphragm of a character to produce a series of lines in the portions of the film left unexposed in the first instance, making a positive from the film, and preparing from the positive, a resist through which a metallic member is etched to produce the intaglio printing surface.

2,101,052. PRINTING PLATE AND METHOD OF MOUNTING THE SAME. Arthur B. Davis, Springfield, Ohio. Application June 26, 1931. Serial No. 546,561. 4 Claims. (Cl. 101—415.1.)

3. The combination with a printing press support having a surface upon which a printing member is to be mounted, of a separately formed expansible backing plate conforming to the contour of the surface and shiftable edgewise in any direction while lying against the support, the plate having fastening devices extending along opposite marginal edges and disposed above the surface of the support, a type-carrying sheet overlying the plate and having fastening elements spaced for engagement with the devices, the plate comprising at least two separate sections cooperating when in edgewise abutting relation to form a continuous backing for the type on the sheet and shiftable relatively to each other while the devices and elements are engaged, to expand the plate in an edgewise direction against the elements and thereby stretch the sheet over the plate surface to form a unitary printing plate assembly, and clamping devices on the support overlying the edges of the assembly and acting to fasten the assembly to the support, the clamping devices being detachable to permit of bodily edgewise adjustment of the assembly in any direction along the surface of the support.

2,101,838. PRINTING CUT. Joseph T. Cochran, Chicago, Ill. Application October 28, 1935. Serial No. 46,979. 5 Claims. (Cl. 101—401.1.)

1. The process of producing a photographic printing plate from a thin flexible positive film coated with a sensitized gelatine emulsion which comprises the photographic formation of relief printing surfaces of high-light and shadow dots of varying heights on the film, in accentuating the height variation of the dots, and in applying a resilient backing to the film which will permit the latter to yield for bringing the printing surfaces of the dots into alignment when printing pressure is applied to the backing.

2,102,021. PHOTOGRAPHIC HALF-TONE SCREEN MATERIAL AND PROCESS. Alexander Murray, Rochester, N. Y., assignor, by mesne assignments, to Eastman Kodak Company, Jersey City, N. J., a corporation of New Jersey. Application May 21, 1935. Serial No. 22,577. 9 Claims. (Cl. 95—5.)

6. A photographic element comprising a support, an emulsion layer on the support, a developed and fixed half-tone screen image of a uniform light source in one stratum of the emulsion layer, and a developed and fixed continuous tone image of a subject in a separate stratum of the emulsion layer.

2,102,022. COLOR CORRECTED PHOTOMECHANICAL PRINTING PLATE. Alexander Murray, Rochester, N. Y., assignor, by mesne assignments, to Eastman Kodak Company, Jersey City, N. J., a corporation of New Jersey. Application July 6, 1935. Serial No. 30,091. 6 Claims. (Cl. 95—5.1.)

5. The method of making a set of color-corrected plates for photomechanical printing, which comprises forming blue, green, and red color separation negatives of an original in silver halide emulsions, printing positives of the color separation negatives representing colors requiring correction in senstisve silver halide emulsions, and before developing, desensitising the positives and then exposing them separately to red light under a color filter negative representing another color, then developing and fixing the corrected color separation positives, and printing a positive directly from the remaining color filter negative.

PATENT DECISION

It is reported that in a suit brought in the District Court, District of New Jersey, by Walter Scott & Company against Wood Newspaper Machinery Corporation both of Plainfield, N. J., charging infringement of the patent to Scott No. 1,908,490 by the manufacture and sale of the Wood Company's automatic web roll changer for high-speed printing presses, Judge Clark in an opinion filed February 4, without ruling on the validity of the patent, held that it was not infringed and dismissed the bill of complaint.

Interest High in Exhibit Space

The following printing equipment and supplies firms have reserved exhibit space at the Royal York Hotel, Toronto, for the A.N.P.A. Mechanical Conference which is to be held June 6, 7 and 8. Considering that the 1938 Mechanical Conference will not be held until early in June, the number of exhibit space reservations made at this time is an indication that the Toronto Conference will be successful in every way. American manufacturers and suppliers are again reminded that by conforming to a few simple regulations, exhibits can be taken duty free into Canada.

Booth, E. A., Rubber Co.
Eastman Kodak Company
Editor and Publisher
Electro-Hydraulic Equipment Co.
Gaebel, Arthur H.
Imperial Type Metal Co.
Lake Erie Engineering Corp.
Linograph Corporation
Linotype Parts Company
Ludlow Typograph Company
New England Newspaper Supply Company
Printing EQUIPMENT *Engineer*
Rapid Electrotype Co.
Richards, J. A., Company
Rouse, H. B., and Company
Sears Limited
Tingue Brown & Company

65,000 PAPERS PER HOUR

Making a four-unit test run of 30 pages, it is reported, the Youngstown (Ohio) *Vindicator* recently attained a speed of 65,000 papers per hour with its Goss High-Speed Anti-Friction Press.

It is said that at top speed, the printing was clean and clear and uniform in color. Each copy was accurately folded, although the folder was not specially adjusted from the *Vindicator's* regular running speed of 38,000 per hour.

The test was made under the supervision of Leslie Griner, mechanical superintendent, and Earl Weiskittel, pressroom foreman. Henry Vaughan was the pressman in charge. The press crew consisted of Wilbur Kulow, Joseph Barber, John Houck, George Hudnut, Greek Touvelle, Roy Thomas and Joseph Pastula.

CARNEGIE TECH CELEBRATES

The Department of Printing, Carnegie Institute of Technology, Pittsburgh, Pa., of which Glenn U. Cleeton is head, has announced the celebration of its Twenty-fifth Anniversary on February 11 and 12. A program of interest to alumni and friends of the Department has been prepared. Speakers include Frederic W. Goudy, H. L. Gage and John C. Martin.

At 4 p. m., Friday, Feb. 11, O. Alfred Dickman, advertising production manager, New York *Herald Tribune*, addresses those attending the celebration on "Newspaper Typography."

At 9:30 a. m., Saturday, Feb. 12, William Bond Wheelwright, editor, *Paper and Printing Digest* discusses "Paper as a Medium for Printing."

At 10 a. m., technical sessions conducted as clinics will be held as follows: *Typography*, Douglas C. McMurtrie, Ludlow Typograph Co., chairman. *Design and Layout*, Howard N. King, Typographic Director, Maple Press, York, Pa., Chairman. *Sales and Marketing*, Craig R. Spicher, Director, Sales and Research, Miehle Printing Press and Mfg. Co., Chairman. *Advertising Production*, W. J. Witte, Vice President, Sinclair & Valentine Co., Chairman.

At 1:30 p. m. the technical sessions will be continued as follows: *Lithography and Special Processes*, H. A. Porter, Vice President in Charge of Sales, Harris Seybold Potter Co., Chairman. *Printing Production Problems*, George H. Carter, Assistant to the President, Lanston Monotype Machine Co., Chairman. *Management Problems Clinic* will also take place at this time. *Apprentice Training Problems*, John A. Backus, Director, Dept. of Education, American Type Founders, Chairman.

Graduates identified in the printing field, have been selected to assist the chairman of the various clinics and take part in the discussions.

At the banquet to be held Saturday evening, Dr. Robert E. Doherty, President, Carnegie Institute of Technology; Frederic W. Goudy, Art Director, Lanston Monotype Machine Co., and Harry L. Gage, Vice President in Charge of Sales, Mergenthaler Linotype Co., will speak.

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II.

THE FRAME is fastened to the table or base or to the hinge support with pin hinges. The original drawing, design or pattern is placed on the table or base against the markers or registers. The frame is next let down on to the design. The outlines may be traced on the silk screen with a medium hard pencil or pen and india ink—not too sharp lest it cut the silk. All of the silk is blocked out except the design, using a camel's hair brush and a pyroxylin filler. Swift, single, straight strokes are made as a second stroke over the same spot will raise the filler and cause pin holes. The stencil is now ready for use in single color work.

The Paper Mask Stencil

May be used for streamers, signs and single color. In this work organdy is substituted for silk. The mask is made by drawing or tracing the design on ledger or

Fig. 4.—Profilm is an important addition to silk screen design technique. It consists of a sheet of special paraffine paper laminated with a pyroxlyin film. Profilm is placed upon the original drawing as shown in this diagram. The artist then cuts the film layer of Profilm.

bond paper which is next thinly coated with shellac or lacquer and then cut out with a stencil knife. The cut-out centers of letters and numerals are saved and marked so they may be correctly placed. The paper is placed upon the base or table. When it is dry the screen is placed over the pattern and smoothed over it. A piece of paper is placed over the silk screen and ironed with a medium hot iron, which softens the shellac so the pattern will adhere to the silk. The centers are attached in the same way. Just one side of the paper is shellacked. After being coated with lacquer, the pattern is affixed with a solvent. Nitrocellulose or celluloid sheets may be used instead of paper and attached to the screen with pyroxylin cement.

Photomechanical or Sensitized Silk Screen

This screen may be used when a detailed reproduction approaching exactness is required. Some know-

*Sales Manager, Graphic Arts Finishes, The Sherwin-Williams Company, Cleveland, Ohio. Mr. Zahn is the author of a book in which all details of the process are fully explained. Copies of the book entitled *Silk Screen Methods of Reproduction*, may be obtained from *Printing Equipment Engineer*. Price $3.00 per copy, cash with order.

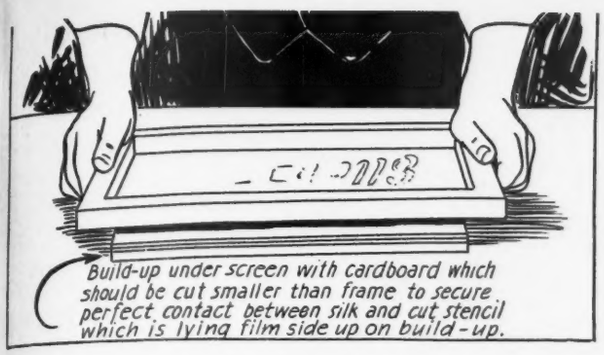

Build-up under screen with cardboard which should be cut smaller than frame to secure perfect contact between silk and cut stencil which is lying film side up on build-up.

Fig. 5.—After the design has been cut in the Profilm as shown in Fig. 4, the frame containing the silk screen is placed upon the Profilm stencil.

ledge of photoengraving is helpful. The positive may be made by tracing the copy on transparent paper, celluloid or tracing cloth. The tracing is blacked out or opaqued. The silk screen is coated with a bichromated fish glue solution which is allowed to flow over both the face and the reverse surfaces of the silk. Two or three coats are given as required. When the solution is dry, the screen is ready for the printing frame. All preparatory work is done in a dark room with a ruby lamp.

The Printing Frame

The printing frame resembles that used by photomechanical workers and is made of wood rabbeted out on one side for a sheet of glass needed to hold the positive against the screen and large enough to hold the frame of the screen. It must be thick enough so that the screen frame will be flush with it when inserted. A felted block is used as a backing pad to hold the screen in contact with the negative. The printing frame is fitted with four clamps on each side to hold the contents together. Twenty minutes exposure to arc light is required. After it has been exposed it is washed out.

The screen is washed out under running water without friction of sponge, brush or the fingers. If washing out is difficult a small quantity of one per cent ammonia solution may be used. After the screen is dry it is ready for the job. If a multicolor job, blocking-out is done on the screen with pyroxylin lacquer, which later may

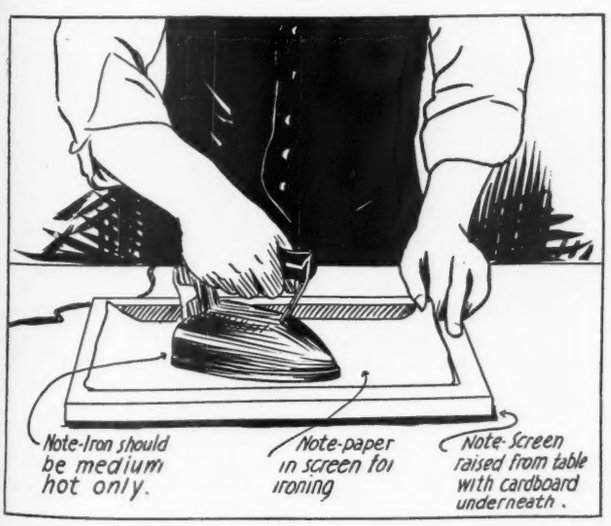
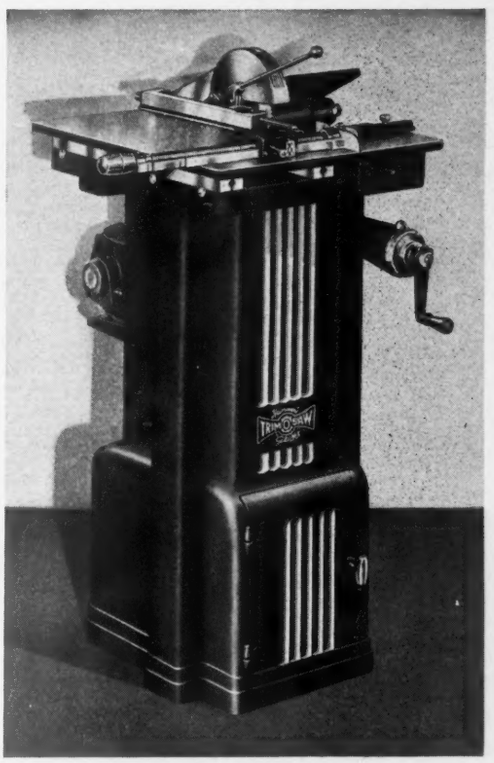

Note-Iron should be medium hot only.
Note-paper in screen for ironing
Note-Screen raised from table with cardboard underneath.

Fig. 6.—A piece of ordinary paper is placed on the silk screen and a medium hot iron is passed over the screen area. The heat from the iron causes the pyroxylin film in the stencil to adhere to the silk screen and at the same time loosens the paraffine sheet with which the film has been laminated.

The Saw with the
GUARANTEE



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be washed off with acetone. Acetone is also used as thinner for the pyroxylin or nitrocellulose lacquer which is used to seal the openings in the screen temporarily.

Type and Halftone Reproduction

A good positive for type reproduction consists of a well-inked sharp proof, using bond ink, on cellulose tissue like cellophane or kodapak. The wet impression is dusted with aluminum bronze.

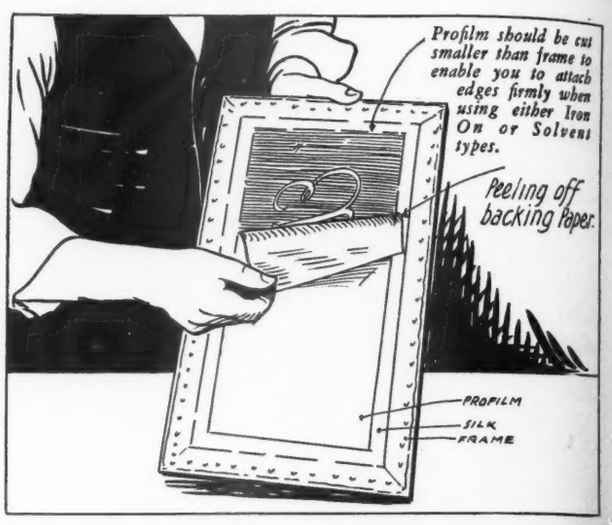

Profilm should be cut smaller than frame to enable you to attach edges firmly when using either Iron On or Solvent types.
Peeling off backing Paper.
PROFILM
SILK
FRAME

Fig. 7.—The paraffine paper is peeled off the stencil and discarded. The screen in the frame is now ready for printing.

Halftones as fine as 60-line screen may be reproduced. It is economical to obtain the positives from a photo-engraver.

Range of Silk Screen Process

Unlike letterpress, offset and gravure, which are limited to use on plane surfaces of limited thickness, the silk screen process is adapted to almost universal application since it may be used on any surface to which paint may be applied owing to the flexibility of the screen which may be shaped for use on other than plane surfaces.

Multicolor Processes

Two processes are used to produce multicolor jobs: The single screen and the single stencil processes. In the single screen process one color is painted on top of another, giving an embossed appearance. Generally, the color occupying most space in the design is run first. If the background is white it is run first and all of the design is included in the stencil on the screen. The screen is cleaned and the white parts of the design are blocked out and all of the remainder of the design is run in the second color. The screen is cleaned and the second color blocked out when the third color may be run and so on.

In the single stencil process a separate stencil is made for each color progressively from the original stencil after each color run. All of the screen is blocked out except the first color which is run. The screen is cleaned and all of the design is blocked out except the second color which is now run off and so on for each color. Register is held better and less paint used in the single stencil process. The choice of process depends upon the effect to be obtained and the character of the job which determines which process is the more economical.

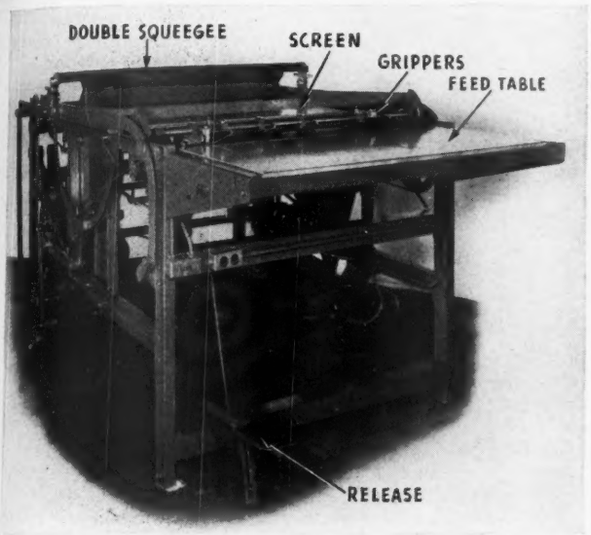
Profilm Most Modern Addition

The most modern addition to the process industry is Profilm. It is a sheet of special paraffine paper laminated

with a special pyroxylin film. In use the Profilm is placed on top of the original drawing which is to be reproduced and is cut out as shown in Fig. 4. The screen is placed on top of the cut stencil as is shown in Fig. 5 and a hot iron is applied. The heated iron attaches the film to the silk. After this operation, the protective paraffine paper is peeled off as shown in Fig. 6. The screen is now ready for printing.

Clogging of the Screen

Clogging of the screen is the principal trouble met in silk screen work but most of it is due to the use of colors not suited to the work and may be avoided by getting paints from a concern successfully specializing in this line. It is also necessary to keep the screen perfectly cleaned out after each run and to make sure the paint is not beginning to dry in the screen during the run. It is very important that the paint be suited to the stock or



"Rockerscreen" Process Press is a flat-bed suction base, automatic screen process printer. It is hand-fed. The press handles paper, cardboard, streamer paper, decalcomanias, etc. This machine is made in two models, 23 in. by 32 in. and 23 in. by 38 in. Its production speed is from 1650 to 1800 per hour. A ⅓ h.p. motor drives the press. The squeege is of the "A" type, the color riding between the two blades. The screen is arched slightly to assure instant release of the paper stock from the screen. Automatic grippers hold the sheet until the processing impression is made and suction is used to grip and hold lighter weight paper and card stock to the platen to prevent stock adhering or sticking to the screen.

material being decorated. Thus a very absorbent stock will be the cause of too rapid penetration of the vehicle while the pigment remains in the screen.

Clean sheets of stock are a safeguard against clogging caused by lint, paper dust and other dirt which catches on the bottom of the screen, picks up paint and results in spots on the stock not in the design.

A base or table top with an uneven surface of high and low spots may cause clogging because the squeegee as it is passed over the screen will press more firmly on the high spots. Too light pressure on the squeegee may also cause clogging.

The End

KLUGE SCHOOL AT CLEVELAND

Cleveland pressmen and their assistants interested in the operation of Kluge Automatic Presses and Feeders have been invited to attend a series of classes on these machines which will be conducted by Simon Brussee, Cleveland representative of Brandtjen & Kluge, Inc. The classes started Monday, February 7, and will be continued every Monday and Tuesday until further notice, in Room 701, Finance Building, 750 Prospect Ave., from 6 to 8 o'clock in the evening. Similar schools are now being held in many other cities throughout the country.

$ ARE YOU PAYING TOO MUCH FOR PRESS BLANKETS?

Are you spending more than necessary for press blankets? Here's one way to find out. Send for complete information on Fitz Livecork Press Blankets —the blankets that are known throughout the printing industry as giving more impression mileage at lower milage cost—that produce many more good impressions without makeready or without taking a permanent set.

If you question the first cost of your present blankets or feel that you are not getting enough impressions, write us a letter or use the postcard in the back of this book telling us your requirements. We will send you samples and prices that will quickly help you to determine whether your press blanket costs are out of line.

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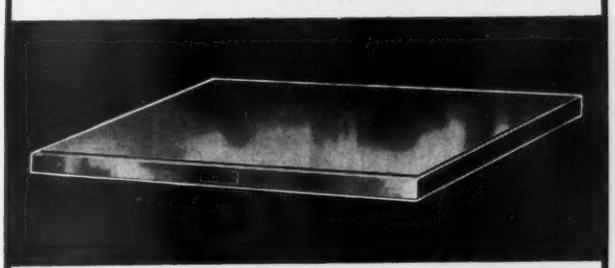

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You can't obtain all the advantages of a modern, highly legible news type without good stereotyping and good printing. That is one reason for the increasing popularity of FLEX dry mats, for these mats have always been well known for their clean, sharp molding of news types and classified pages. FLEX dry mats are equally good for reproducing halftones and heavy solids. Try them! Send for free samples and please specify gauge, shrink, number of casts, and type of casting equipment.

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New Flat Form-O-Scorch

In redesigning the Model "F" Flat Form-O-Scorch, the American Publishers Supply adopted stream-lining. In addition to the many features incorporated in the previous scorcher, the new machine includes as extra equipment a mat basket on its side. Because so many stereotyper executives requested a satisfactory means to accommodate the job mats that come through for drying before casting is started, this basket was included to eliminate the annoyance of lost or mislaid mats.

The Model "F" flat scorcher has a drying area of 19 in. by 26 in. to accommodate any full-page newspaper mat. A cover of ample weight to provide for the proper

flattening of a matrix is cushioned with asbestos to prevent mat fracture. A machine-wide handle permits opening the scorcher from any point.

Heat is controlled by a 3-heat switch offering "high," "low" or "medium" heat and is so regulated that "medium" is set to provide efficient scorching temperature under all normal conditions. "High" is held in reserve for rush work or to attain maximum heat quickly from a cold start while "low" serves to keep the machine saturated with heat ready for use between editions. Unusual in any drying machine, the flat Form-O-Scorch is so constructed that the entire heating arrangement of units, wiring, etc., may be exposed for examination or replacement quickly and simply. This is accomplished by removing the cover from its hinge sockets and lifting up the top of the drying form. This latter is designed similarly to the cover of a box and when removed exposes the complete electrical unit. Heaters are arranged to provide even temperatures at all times and to distribute heat uniformly over the entire drying area.

Literature giving complete details with prices may be obtained by writing American Publishers Supply direct, or in care of *Printing* EQUIPMENT *Engineer*.

P-Double-E File No. 2G12.

Paisley Spray Gun Solution

Paisley Products, Inc., 1770 South Canalport Ave., Chicago, announces a new spray gun solution to be sold direct to the consumer. The new product is being marketed under the name Paisley Spray. Manufacturer states exhaustive research, laboratory and practical plant experimentation have been conducted over a long period of time. One gallon of the solution is claimed to spray efficiently 1,500,000 sq. ft. of paper.

According to the maker, Paisley Spray is made from a vegetable base and contains no grit, abrasive particles,

waxes or chemicals to fade delicate printing inks; the spray is characterized by freedom from clogging or "building up" when used in multiple color printing.

Two solutions are offered: One is for commercial work and the second is intended for carton and board work. Special solutions for difficult work are available.

P-Double-E File No. 5EE.

Announcement

Announcement has been made that on January 17, 1938, the well known Hacker Test Presses, Block Levelers, Plate Gauges and Test Blocks were added to the Vandercook line and they will be manufactured in the modern Vandercook plant in Chicago.

The Hacker equipment will be sold and serviced by Vandercook & Sons from their Chicago and New York offices and by all Vandercook dealers in this and foreign countries.

The acquisition of the Hacker line will enable Vandercook & Sons to be of greater service to the Graphic Arts.

Employment-Service Department

Employers, production and mechanical executives may insert notices in this department.

Items for this department may pertain to the following subjects: "Executive Wanted," "Association or Partnership Wanted," or "Position Wanted," readers referring to subjects of a personal nature such as obtaining information about addresses of executives, supplying copies of technical articles and magazines, patents for sale or requests for contacts for developing and/or financing of inventions.

Any reasonable request from an employer or mechanical executive for the printing of a notice upon a subject other than the ones listed above will be granted.

Notices may be printed under the following regulations: First insertion (maximum six lines) is free of charge. All subsequent insertions of the same item subject to a charge of 75c per line in advance.

Address all communications with box number to *Printing* EQUIPMENT *Engineer*, 1276 West Third St., Cleveland, O.

LITHOGRAPHIC SUPERINTENDENT—Wants new connection. Over 20 years experience, 42 years of age. Practical working knowledge of transferring, proving, stripping, plate-making and photo-composing. Has been foreman and superintendent of large plants. Reply Box 39.

OPPORTUNITY—Responsible party can buy complete 20-year-old manufacturing business. Product well-known throughout printing industry. Free from indebtedness. Approximately $50,000 required. Excellent reason for selling. Reply Box 40.

SALES MANAGER WITH CAPITAL—Can buy half-interest in well-established, debt-free business manufacturing machines for newspaper and commercial printing plants. Several thousand machines now in use. Approximately $15,000 to $20,000 required. Replies will be held confidential. Reply Box 41.

BINGHAM'S ANNUAL MEETING

The annual meeting for branch managers and salesmen of the Sam'l Bingham's Son Mfg. Co. was held at the Palmer House, Chicago, on January 17, 18 and 19. Forty-three representatives of the Bingham organization were present. New developments, manufacturing methods and other topics of interest to roller production and sales were discussed.

PADGETT IN MILWAUKEE

Deo A. Padgett is now composing room superintendent of the Wisconsin *News-Sentinel*, Milwaukee, Wis. Up until the recent disposal of the Omaha *Bee-News* to the Omaha *World-Herald*, Mr. Padgett was superintendent of the *Bee-News* composing room.

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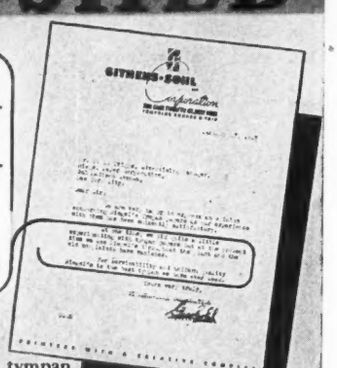

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Equipment Sales

Webendorfer-Wills Co., Inc.

Webendorfer-Wills Co., Inc., Mt. Vernon, New York, announce the following recent installations: Philadelphia, Pa.—Quality Print Shop, two Webendorfer 22 by 29 offset presses. This concern has purchased eight Webendorfer presses. Allentown, Pa.—Holben Printing, installed 22 by 29 Webendorfer offset press. Chicago, Illinois.—Redson-Rice Corp., installed a 17 by 22 Webendorfer offset press. The University of Chicago Press, a 22 by 29 Webendorfer offset press. The New Method Label Co., a 22 by 29 Webendorfer offset press. St. Louis, Missouri—American Lithofold Corp. has installed a large Webendorfer reel-fed salesbook press. This machine is one of the largest of the web type ever built by the Webendorfer Co. New York—Henry Bass Advertising Agency, installed a 17 by 22 Webendorfer offset press. Hanograf Corp., installed a 17 by 22 Webendorfer offset press. National Superior Program Co., installed a 17 by 22 Webendorfer offset press. Rite Printing Service, have also installed a 17 by 22 Webendorfer offset press. Hoboken, New Jersey—Autographic Register Co., Hoboken, N. J., has just installed the second large web reel-fed Webendorfer offset press and the third machine will be installed shortly. Tuckahoe, N. Y.—Acme Manifolding Co., recently installed a large web reel-fed offset press for salesbook work.

New Goss Press at Peoria "Star"

The first run of the new Goss press at the Peoria (Ill.) *Star* was made on Monday, January 31. Installation of the equipment was completed by The Goss Printing Press Co., Chicago, earlier in the month. The total installation includes six Goss anti-friction units with two reversible printing couples, one double folder with upper formers, cast-iron substructure, and six sets of two-roll paper roll stands complete with Goss automatic tensions.

Recent Linotype Installations

Linotypes recently have been installed by the *Gaines County News*, Seagraves, Texas; Torrington (Conn.) *Register; Monroe County Weekly*, Monroe, Mich.; *Hilltop Record*, Columbus, Ohio; Frank J. Breslin, Boston; Oil City (Pa.) *Derrick;* The *Czas*, Brooklyn, N. Y.; Plainfield (N. J.) *Courier-News;* The *Lemonter*, Lemont, Ill.; Peoria (Ill.) *Sonn; State-Times* and *Morning Advocate*, Baton Rouge, La.; Taunton (Mass.) *Daily Gazette; Granite State Times*, Wolfeboro, N. H.; General Typesetting Company, Inc., Chicago; Huston Composition Company, Inc., New York City; Eau Claire *Leader* and the *Daily Telegram*, Eau Claire, Wis.; *State Journal* and the *Sunday Journal*, Lincoln, Neb.; Williamsburg (Iowa) *Shopper;* I. F. Huntzinger Company, Inc., Camden, N. J.; Jackson Printing Company, Milwaukee; Art Press, Inc., Chicago; *Post-Crescent*, Appleton, Wis.; Whipkey Printing Company, Colorado, Texas; Savoy Printing Company, Lafayette, La.; W. A. Keller Company, St. Paul; Free Press Printing Company, Burlington, Vt.; *Grit*, Williamsburg, Pa.

Newspapers Install Ludlow Equipment

Ludlows have been installed recently by the Bridgeport (Conn.) *Times-Star;* Port Chester (N. Y.) *Daily Item;* Detroit (Mich) *Highland-Parker;* Lodi (Calif.) *Times;* Westfield (N. J.) *Standard;* Braddock (Pa.) *Free Press;* Branford (Conn.) *Review;* Buffalo (N. Y.) *Polish Everybody's Daily;* and the San Francisco (Calif.) *Western Worker.*

Newspapers Install Elrod Equipment

Elrod lead, slug, rule and base casters have been installed recently by the Wilkes-Barre (Pa.) *Sunday Independent;* Morristown (N. J.) *Record;* Jeanette (Pa.) *News-Dispatch;* Gadsden (Ala.) *Times;* West Palm Beach (Fla.) *Post & Times;* New York (N. Y.) *Jewish Daily Forward;* Los Angeles (Calif.) *Tidings;* Troy (Ohio) *Daily News;* Endicott (N. Y.) *Daily Bulletin;* Westfield (N. J.) *Standard;* Ventura (Calif.) *Star-Free Press;* Connellsville (Pa.) *Daily Courier;* Fall River (Mass.) *L'Independant;* and the Middletown (Pa.) *Journal.*

Duplex Installation

A new 16-page Duplex Unitubular press has been shipped to the Peoples Press, Inc., Manila, P. I. The press consists of four printing units, a half page folder, one double color cylinder and auxiliary equipment for color printing. Two printing units are double reversible. Electric paper roll hoists and automatic tension devices are included also. Complete stereotyping equipment, Duplex rubber rollers and a 75 h.p. full automatic press drive accompanied the shipment.

Six Generations Removed

Here is a graphic demonstration showing what happens when stereotype casts are made successively from the same subject but in progressive order six times removed from the original. It is reproduced through the courtesy of M. George Martin, Production Manager of the Louisville *Courier-Journal* and *Times*. The illustrations were printed in instructions to advertisers. Mechanical executives are familiar with the loss of detail and the shrinkage in depth and width resulting from casting stereos one generation removed from the previous cast. This is a concrete demonstration of the results obtained by casting stereos from mats picked up from previous issues.

1. From original cut

2. From mat of No. 1

3. From mat of No. 2

(*Continued on Page 48*)

it brings Mastery

Years of concentrated and faithful effort, striving each time to do better than before, are bound to bring mastery of any art. For 30 years Kimble has thus specialized in Electric Motors for the Graphic Arts. Kimble has mastered *that* difficult art.

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NEW I. A. E. & S. OFFICIAL

Albert E. Benson of San Francisco, assumed office on January 1, as managing director and secretary-treasurer of the International Association of Electrotypers and Stereotypers. His headquarters are at 950 Leader Bldg., Cleveland.

ANNOUNCES NEW DYE PIGMENT

A new dye pigment for use in printing inks is announced by E. I. du Pont de Nemours & Company in the development of "Lithosol" Fast Yellow Y Powder, a green pigment yellow, greener than Fast Yellow HN Powder but equal in strength. When used as a pigment it shows similar resistance and working properties to the redder type.

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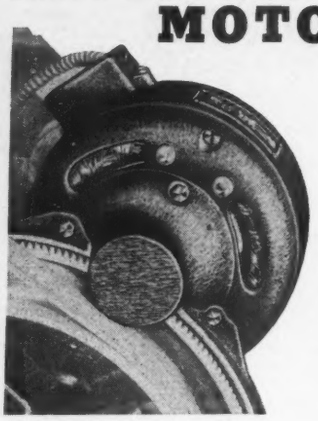
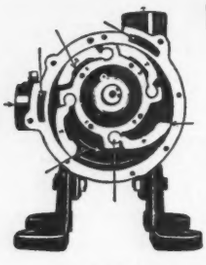
MOTOR saves
35% to 50% on Current



This Cushman Offset Motor, for composing machines, will positively save from 35% to 50% on current costs.

Let us send you one on trial. You can install it in 10 minutes. Watch it operate. Decide for yourself.

Cushman Electric Co.
65 South Main St.
Concord, N. H.



THE SUCTION THAT LIFTS THE PAPER IN ALL SORTS OF FEEDERS

They are also used for blowing to loosen up sheets of paper on a pile feeder.

The printer also uses these pumps for cooling linotype molds and for blowing dust out of the working parts of machinery and out of type cases.

The electrotyper uses the air for agitating his plating solutions, and these pumps are found in almost every plant doing this work. All sorts of shops use them for all sorts of air using devices.

IDEAL FOR VACUUM PRINTING FRAMES

In the big shops, especially in the newspaper plants, these pumps operate the stereotype furnaces creating high heats with gas or oil as fuel.

LEIMAN BROS., Inc.
141 CHRISTIE ST. NEWARK, N. J.
MAKERS OF GOOD MACHINERY 50 YEARS

THEY TAKE UP THEIR OWN WEAR

YOU'LL FIND IT
in the P. E. E.
1938
REFERENCE NUMBER
INDEX

GOODRICH PRINTERS' ROLLERS

for printing that is clear and sharp throughout the entire run.

NILES & NELSON, Inc.
Exclusive Distributors
75 West Street - NEW YORK • 400 W. Madison St. - CHICAGO

Six Generations Removed

(*Continued from Page 47*)

4. From mat of No. 3

5. From mat of No. 4

6. From mat of No. 5

NEW OFFICE FOR HUBER

It has been announced by J. M. Huber, Inc., that a new office and a modern plant has been opened at 1850 South Kostner Ave., Chicago. The new offices were occupied on January 3. Executives of the company state the office is being opened to serve middle-western customers. Gravure, lithographic and letterpress inks will be carried.

Progress

(Continued from Page 15)

would interfere seriously with importation. As a result, we built a mill here in the United States. Then I proposed the adoption of the shrinkage allowance of ¼ in. per page and the plan was adopted with the consequent saving of newsprint which has resulted. The principle was born at the time out of the discovery of that condition which was considered a defect.

"Whether or not further shrinkage can be gotten I cannot say as I am not now engaged in making mats but I do believe the newspaper printed page area is going to be still further reduced in width and length in order to save newsprint.

"The mat makers know whether or not the shrinkage of the mat can be increased and definitely controlled in direction. Probably the maximum mat shrinkage will continue to be taken advantage of so far as it can be used without distortion. Only the mat makers can say. However, I do believe it should be carried to its logical conclusion and as much gotten out of shrinkage as is possible and yet provide clear, clean print. Probably it will be found by them that further progress in shrinkage can be made and thus increase to the publisher the savings which shrinkage makes.

Newspaper Margins Too Wide

The writer asked: "In view of the tonnage price increase of newsprint and possible future price increases, do you feel that the advantage gained by the publisher in cutting down roll width can be increased?"

"The margins of American newspapers are far greater than they need be. The reader is not concerned with white space about the page. These excess margins make for just so much waste. I hope to see smaller margins adopted because narrower margins will mean an increase in newsprint savings to the publisher without offending against good taste. I don't believe the cost of newsprint will go down permanently. It will continue to go up because the newspaper industry is competing with the rayon industry for the basic supply of pulp. Rayon is made from pulp and as the demand for rayon increases the demand for pulp will increase. If the rayon industry, through its rapidly growing requirements raises the cost of pulp for the rayon industry, it will raise it also for the newspaper industry. Therefore, I am looking ahead for what the newspaper publisher will be confronted with— looking forward in order to increase the savings that can be made in newsprint, looking ahead to the time when the rayon industry is going to further increase the price of newsprint by planning to build newspaper presses to carry ¼ in. margins on the sides and ⅜ in. margins at the head and foot of the page. This means I am increasing the accuracy of our presses so that the page shall be printed exactly where we want it printed so all pages will register on the sheet with such exactitude that narrow margins can be maintained at full speed of the press.

Lighter Weight Sheet of Greater Opacity

When asked whether newsprint will be made to have greater opacity, Mr. Wood stated American newsprint makers have not concerned themselves enough with opacity and they need to learn how to get it at less cost. Said he: "I believe in a lighter weight sheet for the future, one with more opacity so as to cut down the

TINGUE
PRESS BLANKETS
Keep Your Presses Productive! Save Make Ready Time!
TINGUE on Press Blankets guarantees Superior Printing Qualities
TINGUE PRINTING PRESS BLANKETS
are guaranteed to give superior printing
. . . at low production costs . . .
TINGUE, BROWN & CO.
118-120 East 25th St. NEW YORK, N. Y. | 1227 Wabash Ave. CHICAGO, ILL. | 723 East Washington Blvd. LOS ANGELES, CAL.

PYROMETERS Portable and Wall Type for stereotype or remelting pots, linotype, intertype and monotype metal temperatures.
Write for information
ILLINOIS TESTING LABORATORIES, Inc.
139 W. Austin Ave. Chicago, Ill.

GENERAL REPAIR OF LINOTYPE AND INTERTYPE MOLDS (ANY KIND, ANY SIZE). PARTS, ETC., SINCE 1912
Makers of Reid Magazine Racks, Etc.
WILLIAM REID & CO., 2271 Clybourn Ave., Chicago, Ill.

SPRING TONGUE GAUGE PINS

Reg. U. S. Pat. Office $1.80 Doz. 50c set of 3
Made Only by Originator. All Dealers.
We Make Gauge Pins, Gauges, Gripper Fingers, Etc.
The E. L. Megill Co., 763 Atlantic Ave., Brooklyn, N. Y.

SPACEBANDS—75c each
Sizes available: Regular, Teletype, Thin, Extra Thin and Jumbo
SEND FOR CATALOG
REID BROTHERS CO., Inc.
BEVERLY, MASSACHUSETTS

It Pays to Print It on a MIEHLE
Vertical • Horizontal • Automatic Units • Flat Bed Cylinder Presses
Two-Color Presses • Perfecting Presses • Cutting and Creasing Presses
Unit-Type Offset Presses • Power Plate Press
MIEHLE PRINTING PRESS & MFG. CO.
CHICAGO NEW YORK
SALES OFFICES IN PRINCIPAL CITIES

FOR DEPENDABLE MAKEREADY PROTECTION
Buy and Specify
CROMWELL
SPECIAL Tympan PREPARED Paper

THE CROMWELL PAPER CO.
4801-29 S. WHIPPLE ST. CHICAGO, ILL.
47-15 PEARSON PLACE LONG ISLAND CITY, N. Y.

weight of an edition. It may come down to 20 lbs. With a lighter weight sheet the publisher will have less cost for material and carriage. The newsboy can carry more copies."

Plate-Making

The question: "Since the printing element is an important consideration isn't there more room for improvement in newspaper plate-making than in any other branch of the Art?" was answered in the negative by Mr. Wood who stated: "No, I don't think so because one can't say so comparatively. There is room for improvement in all production departments of the newspaper. At the present time it depends upon what the publisher wants. Does he want speed? Does he want good letterpress printing or does he want fine illustrations? Tell me in what he needs particular help, then I can answer to what extent I believe he can expect improvement. However, there is still room for improvement in plate-making although the industry is making great strides in improving the quality and accuracy of plates to be run at full speed. But no art stands still.

"The vacuum system which we have adopted for our plate-making machines gives accuracy such as we have never before been able to obtain. The improved stereotype plate gives us increased press speeds and greatly increased life of the mat as the system provides for cooling the mat during the casting operation. The vacuum casting system also makes it possible to put perhaps three more lines on a page, which is quite an item when newsprint savings are taken into consideration. Owing to the progress which is taking place in plate-making, better plates can be obtained now than a year ago. As for speed in plate-making, the top speed is four plates per minute, this being regulated by the quickness with which the molten metal solidifies. In other words, our plate-making machines now produce plates as fast as the setting point of the metal will permit. All these matters of progress are now taking place and their advantages can be easily secured by the publisher."

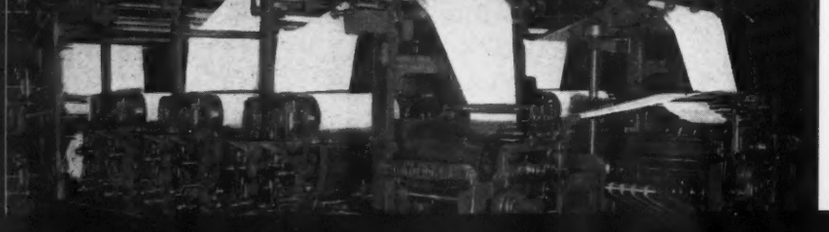
Questioned about a radical change in newspaper plate-making methods, Mr. Wood said he saw no evidence of it yet and we would not until some metal-maker perfects a faster cooling stereotype metal. In response to the question: "With the vacuum plate-making process is it possible to obtain a perfectly plane surface on the plate?" Mr. Wood replied: "Yes, very easy. We are approaching preciseness in plate making and printing such as we have never had before."

(To Be Concluded Next Month)

CORRECTION:

Because of an error in makeup, an illustration of a Duplex newspaper printing press appeared on page 25 of the January issue of *Printing Equipment Engineer* in connection with a news note pertaining to a press shipped by the Goss Printing Press Company to the Vancouver (B. C.) *Sun*. The accompanying text relative to the Duplex press did not appear with the illustration.

The illustration is reprinted here to show the twin 12-page Duplex Unitubular press shipped recently to the Catholic Holding Company, Inc., publisher of the Catholic Register, Denver, Colo. The equipment includes six Unitubular Units, two half-page folders, electric paper roll hoists, automatic tension devices, color register mechanisms on one entire press, complete Tubular stereotype equipment and other auxiliary equipment. The press will be driven by two 50 h.p. full automatic drives.



Consult This Index

Advertisers

For February, 1938

	Page
American Publishers Supply	40-48
American Type Founders Sales Corporation *Agency:* G. M. Basford Company, New York, N. Y.	26-27
Atlantic Zinc Works, Inc.	38
Booth, E. A., Rubber Company	29
Braden Sutphin Ink Company, The	23
Brandtjen & Kluge, Inc.	12
Burgess Cellulose Company *Agency:* Fred A. Robbins, Inc., Chicago, Ill.	39
Certified Dry Mat Corporation *Agency:* The Henry P. Boynton Advertising Agency, Cleveland, O.	32
Challenge Machinery Company, The *Agency:* Simmonds & Simmonds, Inc., Chicago, Ill.	43
Christensen Machine Company, The *Agency:* Hoffman & York, Milwaukee, Wis.	28
Cline Electric Manufacturing Company *Agency:* The L. W. Ramsey Company, Chicago, Ill.	47
Cottrell, C. B., & Sons Company *Agency:* Fred Glen Small, Inc., New York, N. Y.	19
Cromwell Paper Company *Agency:* Roche, Williams & Cunnyngham, Inc., Chicago, Ill.	48
Cushman Electric Company	48
Dayton Rubber Manufacturing Company, The	11
Eastern Newspaper Supply	44
Edes Manufacturing Company, The *Agency:* The Callaway Associates, Inc., Boston, Mass.	33
FitzPatrick Felt Manufacturing Company	43
Flexideal Dry Mat Company *Agency:* Fred Glen Small, Inc., New York, N. Y.	44
General Electric Company	30-31
Goss Printing Press Company, The *Agency:* Simmonds & Simmonds, Inc., Chicago, Ill.	13
Hammond Machinery Builders	35-41
Harris-Seybold-Potter Company *Agency:* Baker and Baker & Associates, Inc., Cleveland, O.	8
Hoe, R., & Company, Inc. *Agency:* G. M. Basford Company, New York, N. Y.	25
Ideal Roller & Manufacturing Company *Agency:* Munroe & Southworth, Inc., Chicago, Ill.	6
Illinois Testing Laboratories, Inc.	46
Imperial Type Metal Company	34
Intertype Corporation *Agency:* Fred Glen Small, Inc., New York, N. Y.	Outside Back Cover
Kemp, The C. M., Manufacturing Company *Agency:* Frank D. Webb Advertising Company, Baltimore, Md.	21
Kimble Electric Company *Agency:* Kirkgasser-Drew, Inc., Chicago, Ill.	47
Lake Erie Stereotype Equipment Corporation *Agency:* Horace A. Laney, Buffalo, N. Y.	36
Leiman Brothers, Inc.	48
Linotype Parts Company	24
Ludlow Typograph Company *Agency:* Simmonds & Simmonds, Inc., Chicago, Ill.	5
Matrix Contrast Corporation *Agency:* Fred Glen Small, Inc., New York, N. Y.	14
Megill, The Edward L., Company	49
Mergenthaler Linotype Company *Agency:* Kenyon & Eckhardt, Inc., New York, N. Y.	Inside Front Cover
Miehle Printing Press & Manufacturing Company *Agency:* Raymond Heer, Chicago, Ill.	49
Milwaukee Saw Trimmer Corporation	45
Miller Printing Machinery Company *Agency:* Ketchum, MacLeod & Grove, Inc., Pittsburgh, Pa.	7
Montgomery & Bacon	45
Niles & Nelson, Inc. (Goodrich, The B. F., Rubber Company) *Agency:* Griswold-Eshleman Company, Cleveland, O.	48
Rapid Roller Company *Agency:* Burton G. Feldman & Associates, Chicago, Ill.	22
Reid Brothers Company, Inc.	49
Reid, William, & Company	49
Riegel Paper Corporation *Agency:* William H. Hodgins, New York, N. Y.	46
Rouse, H. B., & Company *Agency:* Clifton Kirkpatrick, Chicago, Ill.	40
Sinclair & Valentine Company	42
Stahl Newspaper Supply Company, The	3
Tingue, Brown & Company *Agency:* The Overhague Advertising Agency, New York, N. Y.	49
Vandercook & Sons *Agency:* Clifton Kirkpatrick, Chicago, Ill.	Inside Back Cover
Vulcan Proofing Company *Agency:* Fred Glen Small, Inc., New York, N. Y.	33-42
Webendorfer-Wills Company, Inc.	37
Wood Flong Corporation *Agency:* Metropolitan Advertising Company, New York, N. Y.	26
Wood Newspaper Machinery Corporation *Agency:* Fred Glen Small, Inc., New York, N. Y.	10

Technical Information and Literature

FOR PRODUCTION AND MECHANICAL EXECUTIVES ONLY

For Your Convenience—Circle the numbers on the convenient postage-paid return card, supply your name, title and company address and mail—we do the rest. Manufacturer or supplier will send you information or literature about equipment or supplies advertised in this issue. This card saves you time and postage—Keep Informed.

PRESS ROOM

1 16 page folder entitled "A GRAPHIC STORY OF FEATURES THAT GIVE DOMINANCE TO HARRIS PRESSES"—will be mailed to you on request. Featured on page 8 of this issue—"Spiral gears in the main drive." P-Double-E File Nos. 2D24 and 5LL 26.

2 Booklet on "THE CARE AND USE OF VULCAN GELASTIC INKING ROLLERS"—will be sent to you on request. See advertisement on page 33. Also featured on page 42 are Vulcan Press Blankets and Inking Rollers. Will send information on either of these items. P-Double-E File No. 5NN.

3 BALANCED PERFORMANCE—Folder describes and illustrates the advantages of the Miller Simplex in detail, by "factual photo." You may have it on request. The Simplex Press is shown on page 7. P-Double-E File No. 5LL.

4 NEW NON-SCRATCH HALFTONE BLACK—In its advertisement on page 23 The Braden Sutphin Ink Company states that this ink has "greater density of color and is cleaner in the highlights." Complete information and prices will be sent on request. P-Double-E File No. 5W.

5 FITZ LIVECORK PRESS BLANKETS—Manufacturer states "will hold up under more impressions. Will back up statement with samples and further information." P-Double-E File No. 5L. These blankets are featured on page 43.

6 Complete information on the DAYCO "STAYPUT" ROLLER for newspaper presses, featured on page 11 as being the only renewable surface roller will be mailed to you. Use the return card. P-Double-E File No. 5NN.

7 RIEGEL TYMPANS—Free trial sheets will be sent by manufacturers who state in advertisement on page 46 that "Riegel Tympan Paper vanishes complaints." Investigate. P-Double-E File No. 5L.

8 See the KLUGE PLATEN PRESS in action. Ten operating exhibits are listed on page 12. Further information will be sent or a representative will call. P-Double-E File No. 5LL28.

9 Investigate the outstanding features of the GOSS HIGH SPEED ANTI-FRICTION PRESS given on page 13. Complete information will be sent to you on request. P-Double-E File No. 5LL25.

10 NEW 17" x 22" KELLY PRESS is shown on page 26 and 27 and featured by American Type Founders as giving "Thousands of extra impressions a week." All details will be sent to you if you want them. P-Double-E File No. 5LL9.

11 64 page SUPER PRODUCTION MAGAZINE PRESSES—13 installations recently made. R. Hoe & Company state that these presses "possess the main mechanical essentials of high speed and quality." See page 25. Will mail further information. P-Double-E File No. 5LL24.

12 IDEAL ROLLERS for every purpose. See page 6. You can have further information on the use of Ideal Rollers in your plant. P-Double-E File No. 5NN.

13 RAPID ROLLER—Advertisement on page 22 suggests that "it would be a wise move to adopt mercury rollers for newspaper use." P-Double-E File No. 5NN.

14 NEW 1938 COTTRELL ROTARY PRESS, illustrated on page 19. Said by the manufacturer "to open up a new source of profit for many printers"—"is built for medium and long runs." Additional information will be sent on request. P-Double-E File No. 5LL32.

15 CHAMPION BLACKS are featured on page 42 for modern high-speed presses. Further information will be mailed to you on request. P-Double-E File No. 5W.

16 WEBENDORFER OFFSET AND LETTER PRESSES—Webendorfer will send full literature covering complete line of presses. On page 37 are illustrated sheet and web reel-feed offset presses and a letterpress. P-Double-E File Nos. 2D24, 5LL26 and 5LL1.

17 HIGH-SPEED BRONZER — The Christensen Machine Company says "it practically eliminates re-dusting because it cleans both sides of the sheet." "It saves you $2,000 to $5,000 a year on bronzing costs." See page 20. Particulars mailed. P-Double-E File No. 5F.

COMPOSING ROOM

18 KARNAK BLACK ITALIC—A new type face recently announced by the Ludlow Typograph Company is shown on page 5. Specimen sheets showing all sizes of this type face will be gladly mailed if you want them. P-Double-E File No. 1G5.

19 TEST PRESSES AND PROVING MACHINES—Hacker test presses, block levelers, plate gauges and test blocks have been added to the Vandercook line of hand and power proof presses. See advertisement on the inside back cover. Information on complete line sent on request. P-Double-E File No. 1V.

20 BLUE STREAK MASTER MODELS—Detailed information and a twelve-page booklet on the Blue Streak Master Models 31 and 32, featured on the inside front cover, this issue, will be sent to you on request. P-Double-E File No. 1G.

21 MATRIX CONTRAST SERVICE—You can have further information on this service which is designed to reduce

Check off the literature you want on reverse side of this card. Postage paid. No obligation.

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
First Class Permit No. 2285, Sec. 510 P. L. & R. Cleveland, Ohio

Printing EQUIPMENT Engineer
1276 W. 3rd Street
Cleveland, Ohio

machine composition errors to a minimum. See the advertisement on page 14 and investigate further. P-Double-E File No. 1G7.

22 CHALLENGE SEMI-STEEL IMPOSING SURFACES—Made in all sizes. Manufacturer states in advertisement on page 43, "This cost reducing equipment is built to last—two inches thick—strongly reinforced." Further information and prices will be sent. P-Double-E File No. 1Q.

23 NEW INTERTYPE SIX-POCKET MOLD DISK—illustrated and described on the back cover of this issue, will carry six 30-em molds with automatic ejector blade selection. Particulars will be sent. P-Double-E File No. 1G.

24 MAGAZINES FOR LINOTYPES—Top plate of duralumin, bottom plate of brass. Advertiser states—page 45—that "they have all the desired features; ruggedness, accuracy, light weight." Literature will be mailed if desired. P-Double-E File No. 1G9.

25 C & G DELUXE MODEL SAW-TRIMMER—Shown on page 45. Manufacturer will send descriptive literature on request. P-Double-E File No. 1Z.

26 SENNETT POSITIVE ASSEMBLER is featured on page 40 as being "able to speed up typesetting twenty per-cent." H. B. Rouse & Company will be glad to send you a circular describing this unit. P-Double-E File No. 1G.

27 LUDWICK THERMOSTATS—for electric pot temperature control on Linotypes, Intertypes, Monotypes, Ludlows, Elrods. Shown and described on page 24. Prices also given. Manufacturer will send instructions and equipment for attaching. P-Double-E File No. 1G.

STEREOTYPE DEPARTMENT

28 Literature fully describing the new FLAT FORM-O-SCORCH will be sent to you by American Publishers Supply. See page 40. The Therm-O-Set Fuzon is featured on page 46. You may have samples on request. P-Double-E File Nos. 2G12 and 2G34.2.

29 Several items of PLATE-MAKING EQUIPMENT are shown and described on page 3 by the Stahl Newspaper Supply Co. Information on any of this equipment will be sent on request. P-Double-E File No. 2G.

30 FLEX DRY MATS—Advertisement on page 44 asks you to "make the most of your modern news type." Free samples will be sent. Please specify gauge, shrink, number of casts, type of equipment. P-Double-E File No. 2G18.

31 KEMP IMMERSION REMELT POTS are shown on page 21. These pots, the manufacturer says "will reduce dross in stereo melting and save 40 per cent in fuel costs." You can have further details. P-Double-E File No. 2G21.

32 WOOD DRY MATS are featured on page 28. The Wood Flong Corporation "guarantee perfect tonal contrast from the darkest shadow to the whitest highlight" when these mats are used. Samples can be had on request. P-Double-E File No. 2G18.1.

33 DIRECTOMAT MATRIX PRESS—See the advertisement on page 36. Manufacturer enumerates benefits claimed to result from use of Lake Erie Directomat. Complete information will be mailed to your attention. P-Double-E File No. 2G10.

34 CHROME MATS—Samples will be sent on request. See page 39. The Burgess Cellulose Company states that "Chrome Mats capture and reproduce fine halftone areas with unmatched fidelity." P-Double-E File No. 2G18.

35 CERTIFIED DRY MATS—Manufacturer states that "nobody wastes first casts if they use these mats." See the advertisement on page 32. Samples will be sent on request. P-Double-E File No. 2G18.

MISCELLANEOUS

36 NEWSPAPER EQUIPMENT—Wood Newspaper Machinery Corporation will send you more information on any of the equipment items for press-room and stereotype department shown on page 10. Use the return card on this page.

37 MOTORS AND RELATED CONTROLS—Pages 30 and 31 tell of the installation of 517 G. E. Motors in one plant. "Why not investigate the savings that may be made possible by modernization of your plant equipment?" Will send further information.

38 ZINK CUT CEMENT—Advertiser states page 29 that by using this cement "the height of cuts will not be noticeably increased and even printing surfaces are assured." Complete particulars on this cement will be sent on request. P-Double-E File Nos. 1A and 2G1.1.

39 ZOMO-ZINC AND A-Z ALLOY—Both of these metals are made in electric induction furnaces and guaranteed by the manufacturer to be "within 5/100 of one per cent of the ideal formula." See page 38. More complete data is available. P-Double-E File No. 2E12.3.

40 FLAT CASTER—The Hammond Easy-Kaster is shown on page 33. Investigate it. Further information will be sent to you. Also see the Glider Trim-O-saw on page 41. Will send you full details and the names of nearby users. P-Double-E File No. 2G6.

41 PLATE-TAK—A gummed tape for mounting cuts. See the Eastern Newspaper Supply Company's advertisement on page 44. They will gladly send you samples. P-Double-E File Nos. 1A and 2G1.

42 MAINTAINING METAL QUALITY—The Imperial Type Metal Company has a Plus Plan for maintaining the quality of your type metal. This plan covers stereotyping metal as well as the metal used in type-casting machines. Further information will be sent. See page 34. P-Double-E File Nos. 1R and 2G20.

43 KIMBLE MOTORS—for all printing equipment are featured on page 47. Complete information on the many uses of these motors will be sent to you. P-Double-E File No. 5CC.

44 EDES ZINC is featured on page 33 with the caption "Etches Clean and Quick." Investigate. Further information will be sent to you on request. Use the return card. P-Double-E File No. 2E12.3.

This card must be filled out completely in order to secure the literature or information you request. Please circle only bulletins you particularly want.

PRINTING EQUIPMENT ENGINEER **Febr.**

Without obligation please have the manufacturers send me literature circled below. (These numbers correspond to numbers on descriptive paragraphs)

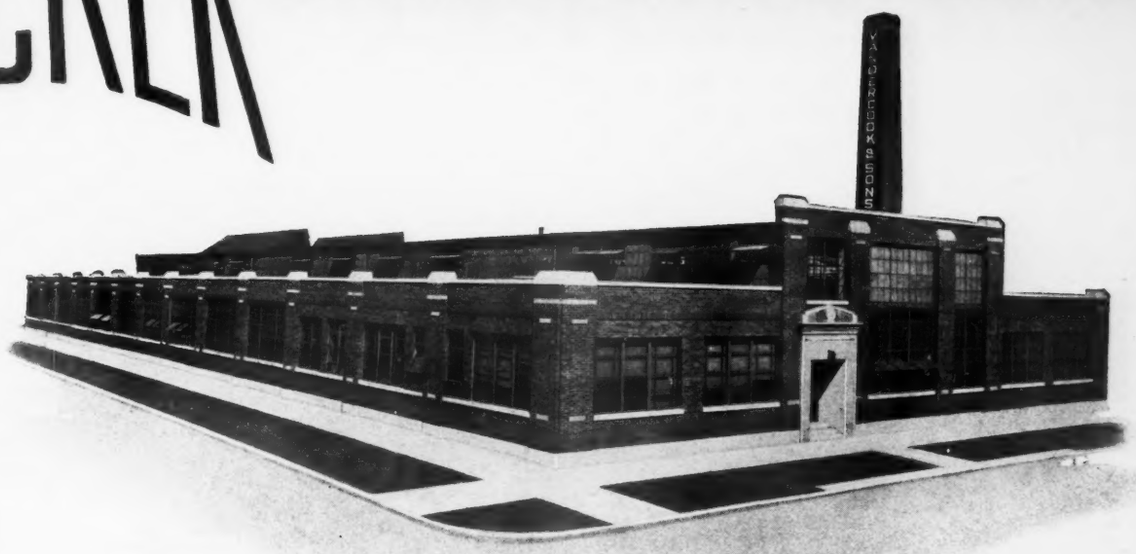
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44

PRINT YOUR NAME AND ADDRESS

NAME.....TITLE.....

FIRM NAME.....

HACKER EQUIPMENT . . .

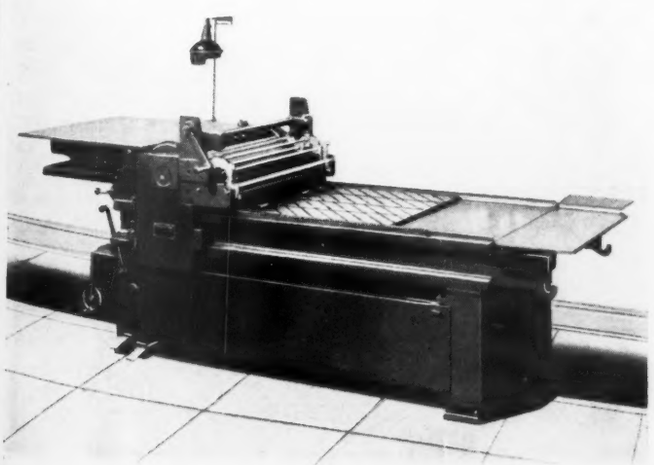


Now MANUFACTURED IN THIS MODERN PLANT

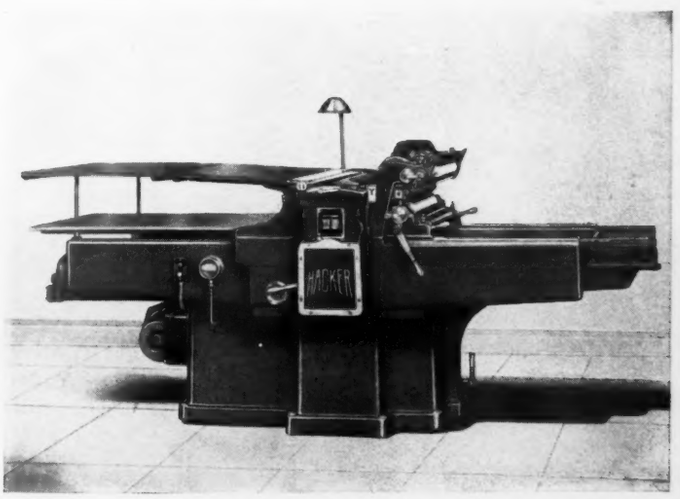
January 17, 1938 Hacker Test Presses, Block Levelers, Plate Gauges and Test Blocks were added to the Vandercook line. They will be manufactured in the modern Vandercook plant in Chicago.

The acquisition of the Hacker line will enable Vandercook & Sons to be of greater service to the Graphic Arts.

Hacker equipment will be sold and serviced by Vandercook & Sons from their Chicago and New York Offices, and by all Vandercook dealers in the United States and foreign countries.



No. 232P Vandercook Power Proving Machine

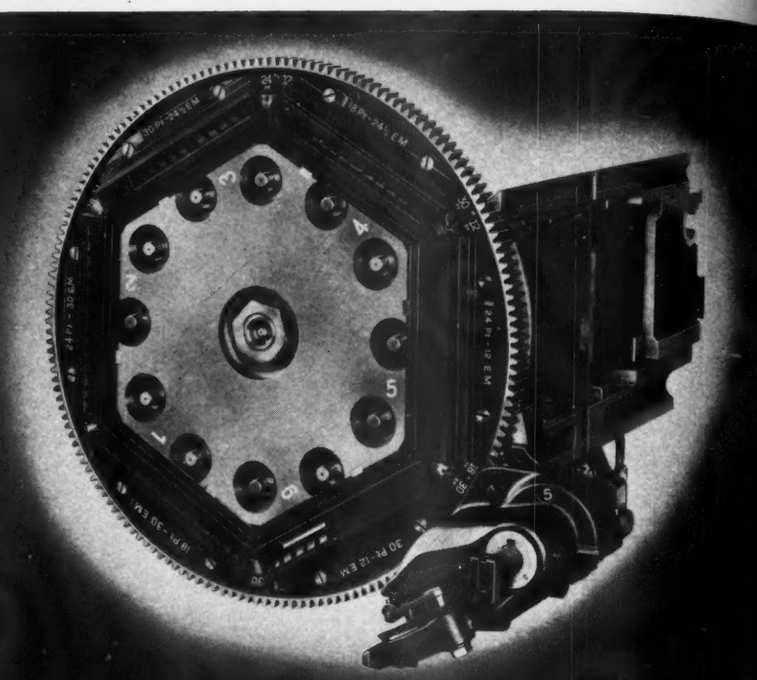


No. 5A Hacker Power Test Press

VANDERCOOK & SONS

Main Office and Factory — Eastern Branch

Another Step Ahead in Composing Machine Flexib



THIS NEW Intertype feature provides for six differe sizes of slugs—in any measures up to thirty ems—quickly available to the operator from his position the keyboard. It eliminates a great deal of changi of molds and mold liners, thus effecting a substanti increase of type production. Outstanding feature

1. Intertype's six-pocket disk will accommodate six full-len 30-em molds or any in-between assortment.
2. Automatic ejector blade selection, in coordination with mo changes. When the operator shifts from one mold to anothe the proper ejector blade for the mold selected is brought in operation automatically.
3. Centralized control of mold and ejector selection is provid in a single operating handle.
4. Accuracy of mold alignment is assured by an entirely ne and remarkably sturdy construction. Safety devices are pr vided to prevent damage to molds and disk.
5. Can be applied, with the necessary operating mechanism, machines already in service as well as to new machines.

The Six-Mold Disk is a logical and desirable develop ment for modern quick-change Intertypes, particu larly the new four-deckers, because it makes the wid range of faces on the machine more quickly usabl than ever before. Write today for more particulars

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